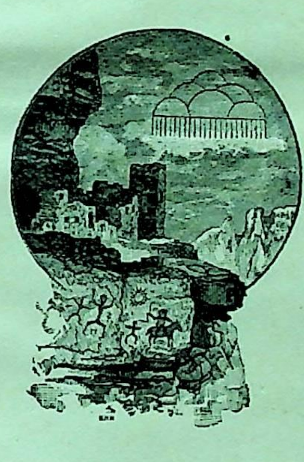
1923

THIRTY-FOURTH
ANNUAL REPORT OF THE

BUREAU OF AMERICAN ETHNOLOGY

TO THE SECRETARY OF THE
SMITHSONIAN INSTITUTION

1912-1913



WASHINGTON
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1922

LETTER OF TRANSMITTAL

Smithsonian Institution,
Bureau of American Ethnology,
Washington, D. C., August 5, 1913.

Sir: I have the honor to submit herewith the Thirty-fourth Annual Report of the Bureau of American Ethnology, for the fiscal year ended June 30, 1913.

With appreciation of your aid in the work under my charge, I am

Very respectfully, yours,

F. W. Hodge,
Ethnologist-in-charge.

Dr. Charles D. Walcott,
Secretary of the Smithsonian Institution.

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REPORT OF THE ETHNOLOGIST-IN-CHARGE

THIRTY-FOURTH ANNUAL REPORT

OF THE

BUREAU OF AMERICAN ETHNOLOGY

F. W. Hodge, Ethnologist-in-Charge

The operations of the Bureau of American Ethnology during the fiscal year ended June 30, 1913, were conducted in accordance with the act of Congress approved August 24, 1912, making appropriations for sundry civil expenses of the Government, which act contains the following item:

American ethnology: For continuing ethnological researches among the American Indians and the natives of Hawaii, including the excavation and preservation of archæologic remains, under the direction of the Smithsonian Institution, including salaries or compensation of all necessary employees and the purchase of necessary books and periodicals, including payment in advance for subscriptions, $42,000.

SYSTEMATIC RESEARCHES

The systematic researches were conducted by the regular staff of the bureau, consisting of seven ethnologists, and by other specialists not directly connected with the bureau. These operations may be summarized as follows:

Mr. F. W. Hodge, ethnologist-in-charge, was occupied almost entirely during the year with administrative affairs pertaining to the bureau's activities. He was able to devote some time to the preparation of the Bibliography of the Pueblo Indians, the writings relating to the subject covering so extended a period (from 1539 to date) and being so numerous that much remains to be done. He devoted attention also, as opportunity offered, to the revision of certain sections of the Handbook of American

Indians, but as it is the desire to revise this work completely, with the aid of the entire staff of the bureau as well as of other specialists, little more than a beginning of the revision has been made. Mr. Hodge continued to represent the Smithsonian Institution at the meetings of the United States Board on Geographic Names, and the Bureau of American Ethnology on the Smithsonian advisory committee on printing and publication.

Dr. J. Walter Fewkes, ethnologist, spent the summer months and part of the autumn of 1912 in correcting the proofs of his monograph on Casa Grande and of his report on the Antiquities of the Upper Verde River and Walnut Creek Valleys, Arizona, both of which appear in the Twenty-eighth Annual Report of the bureau, and in completing the draft of a memoir devoted to the Symbolic Designs on Hopi Pottery, which it is designed to publish with numerous illustrations. The remainder of the autumn was occupied by Dr. Fewkes in gathering material for an eventual memoir on the Culture History of the Aborigines of the Lesser Antilles, these data being derived chiefly from a study of the early literature of the subject and of the rich West Indian collections from the island of St. Vincent in the Heye Museum of New York City. Preparatory to the publication of the final results, Dr. Fewkes, with the generous permission of George G. Heye, Esq., selected with entire freedom the necessary objects for illustration, and before the close of the fiscal year about 200 drawings of the archeological objects in this important collection had been finished.

In October, 1912, Dr. Fewkes sailed for the West Indies under the joint auspices of the bureau and the Heye Museum, the special object in view being the gathering of new archeological data through the excavation of village sites and refuse-heaps and the examination of local collections in the islands. Dr. Fewkes visited Trinidad, Barbados, St. Vincent, Balliceaux, Grenada, Dominica, St. Kitts, Santa Cruz, and other islands, excavating shell-heaps in Trinidad and Balliceaux, and making archeological studies

in other isles. The results of the investigations in Trinidad proved to be especially important, owing to the light which they shed on the material culture of the former aborigines of the coast adjacent to South America.

Extensive excavations were made in a large shell heap, known as Chip-chip Hill, on the shore of Erin Bay in the Cedros district. This midden is historic, for it was in Erin Bay that Columbus anchored on his third voyage, sending men ashore to fill their casks at the spring or stream near this Indian mound. Chip-chip Hill is now covered with buildings to so great an extent that it was possible to conduct excavations only at its periphery; nevertheless the diggings yielded a rich and unique collection that well illustrates the culture of the natives of this part of Trinidad. The collection consists of several fine unbroken pottery vessels with painted decoration, and more than a hundred well-made effigy heads of clay, in addition to effigy jars and many broken decorated bowls. There were also obtained from the Erin Bay midden several stone hatchets characteristic of Trinidad and the adjacent coast of South America, a few shell and bone gorgets, and other artifacts illustrating the activities of the former inhabitants. It is an interesting fact that as a whole the objects here found resemble those that have been taken from shell heaps on the Venezuela coast and from the Pomeroon district of British Guiana more closely than they resemble related specimens from the other islands of the Lesser Antilles. Several other middens were examined in Trinidad, the most representative of which is situated near San Jose, the old Spanish capital. Promising shell heaps were discovered also at Mayaro Bay on the eastern coast.

One of the most important results of the West Indian field work by Dr. Fewkes was a determination of the geographical distribution of certain types of artifacts and a comparison of the prehistoric culture areas in the so-called Carib Islands. Evidence of the existence of a sedentary culture on these islands preceding that of the

Carib was obtained, showing it to have distantly resembled that of Porto Rico; this culture, however, was not uniform. Dr. Fewkes also found that there were a number of subcultures in these islands. In prehistoric time Trinidad and Tobago, it was determined, were somewhat similar culturally, just as they are similar geologically and biologically, to northern South America. In Dr. Fewkes's opinion perhaps nowhere is the effect of environment on human culture better illustrated than in the chain of islands extending from Grenada to Guadeloupe, which were inhabited, when discovered, by Carib, some of whose descendants are still to be found in Dominica and St. Vincent. The earlier or pre-Carib people were culturally distinct from those of Trinidad in the south, St. Kitts in the north, and Barbados in the east. The stone implements of the area are characteristic and the prehistoric pottery can readily be distinguished from that of the islands beyond the limits named.

A large number of shell heaps on St. Vincent were visited and studies made of localities in that island in which caches of stone implements have been found. Six groups of petroglyphs were examined, even some of the best known of which have never been described. Special effort was made to obtain information respecting the origin of certain problematical objects of tufaceous stone in the Heye Museum, said to have been collected from beneath the lava beds on the flank of the Soufrière.

Dr. Fewkes visited the locality on the island of Balliceaux where the Carib of St. Vincent were settled after the Carib wars and before they were deported to Roatan, on the coast of Honduras. Extensive excavations were made at the site of their former settlement at Banana Bay, where there is now a midden overgrown with brush. Here much pottery, as well as several human skeletons and some shells and animal bones, were found.

The mixed-blood survivors of the St. Vincent Carib who once lived at Morne Rond, near the Soufrière, but who are now settled at Campden Park, near Kingstown, were

visited. These still retain some of their old customs, as making cassava from the poisonous roots of the manihot, and preserve a few words of their native tongue. A brief vocabulary was obtained, but Carib is no longer habitually spoken in St. Vincent.

The fertile island of St. Kitts and the neighboring Nevis were found to be particularly instructive archeologically. Both have several extensive middens and well-preserved pictographs, the former having yielded many artifacts that illustrate the material culture of its pre-Carib inhabitants. Through the courtesy of Mr. Connell his large collection, which adequately illustrates the culture of St. Kitts and Nevis, was placed at the disposal of Dr. Fewkes for the purpose of study, and he was permitted to make drawings of the more typical objects, one of the most instructive of which is a sculptured torso from Nevis.

In Barbados Dr. Fewkes examined the midden at Indian River, on the west coast, from which site the important Taylor archeological collection was gathered. Several other middens were visited on the lee coast from Bridgetown to the northern end of the island, where a marly hill strewn with potsherds was observed. He also examined the so-called "Indian excavations" at Freshwater Bay and others at Indian River, and visited several cave shelters on the island. The most noteworthy of these caves are situated at Mount Gilboa and in the Scotland district, St. Lucy Parish. To one of these, known as the "Indian Castle," described in 1750 by the Rev. Griffith Hughes, who claims to have found therein an idol and other undoubted Indian objects, Dr. Fewkes devoted much attention. The gulches so characteristic of Barbados were favorite resorts of the aborigines, and, judging by the artifacts, furnished cave shelters for them. Although uninhabited at the time of its discovery, there is evidence of a considerable prehistoric aboriginal population in Barbados, whose culture was influenced largely by the character of the material from which their artifacts were made, most of them being fashioned from shell instead of stone—

a characteristic seemingly constituting this island a special culture area.

A collection of stone implements, including celts, axes, and other objects, was gathered at Santa Cruz. Several local collections of archeological objects were examined, and the large midden at the mouth of Salt River was visited. The prehistoric objects obtained on this island and from St. Thomas resemble those from Porto Rico.

Although the Carib inhabitants of the Lesser Antilles are no longer of pure blood, and their language is known to only a few persons in Dominica and St. Vincent, and to these but imperfectly, it was found that the Negroes, who form more than nine-tenths of the insular population, retain in modified form some traces of the material culture of the Indians. Cassava is the chief food of many of the people, and the method of its preparation has been little changed since aboriginal times. Cocoa is ground on a stone and made into cylindrical rolls in much the same manner as it was prepared by the Indians in early times. The basketry made in Dominica was found to be the same in style and materials as is described by the early missionaries to the Carib; while the Negroes of Nevis manufacture pottery of the same form and ornament and burn it in much the same way as that found in the middens of St. Kitts. In working their spells the obia men commonly sprinkle stone objects with the blood of a goat, and the common people regard petroglyphs as "jumbies," or bugaboos. A great number of folk tales of a mixed aboriginal and Negro type are still recounted in the cabins of the lowly, where Carib names for animals, plants, and places are household words.

On his return to Washington Dr. Fewkes undertook the preparation of a report on his archeological researches in the West Indies, and considerable progress therein had been made by the close of the fiscal year.

Mr. James Mooney, ethnologist, was occupied during the greater part of the year with the investigation of Indian population, which has engaged his attention for a con-

siderable time. This research covers the whole period from the first occupancy of the country by white people to the present time, and includes the entire territory from the Rio Grande to the Arctic. To make possible systematic treatment the area covered has been mapped into about 25 sections, each of which constitutes approximately a single geographical and historic unit for separate treatment, although numerous migrations and removals and the frequent formation of new combinations necessitate a constant overlapping of the work of the sections. Several of the eastern areas have been completed and more or less progress has been made with each of the others. More recently Mr. Mooney has concentrated attention on Alaska and western Canada, for the Arctic parts of which Mr. Vilhjálmur Stefánsson and Dr. Waldemar Jochelson have generously furnished new and valuable data. In this memoir the plan is to include chapters on notable epidemics, vital statistics, and race admixture, and the work is intended to appear as a monograph on the subject.

On June 18, 1913, Mr. Mooney proceeded to the Eastern Cherokee Indians in North Carolina to continue his investigations of the medical and religious rituals of that tribe, commenced a number of years ago, as it was deemed wise to finish this part of his Cherokee studies as soon as practicable by reason of the changes that are so rapidly taking place among this people. Mr. Mooney was still in the field at the close of the fiscal year.

Dr. John R. Swanton, ethnologist, continued, both in the field and at the office, his studies of the Indians formerly occupying the territory of the Southern States. He spent the month of November, 1912, with the Alabama and Koasati Indians in Polk County, Tex., where he recorded 250 pages of texts in the dialects spoken by these two tribes, corrected several texts obtained on earlier expeditions, and added materially to his general ethnological information regarding them. In December Dr. Swanton proceeded to Oklahoma, where he obtained about 50 pages of text in Hitchiti, a language now confined to a very few

persons among the Creek Indians, and collected a few notes regarding the Choctaw.

Before his departure from Washington and after his return Dr. Swanton spent the greater part of the time in collecting information concerning the southern tribes from early Spanish, French, and English authorities. Considerable attention was also devoted to reading the proofs of the Rev. Cyrus Byington's Choctaw Dictionary, now in process of printing, in which labor he was efficiently aided by Mr. H. S. Halbert, of the Alabama State department of archives and history. Dr. Swanton also commenced a general grammatical study of the languages of the Muskhogean stock, particularly Alabama, Hitchiti, and Choctaw, and in order to further this work he was subsequently engaged in making a preliminary stem catalogue of Creek from the material recorded by the late Dr. Gatschet, similar to the catalogue already prepared for Hitchiti, Alabama, and Natchez. He began also the preparation of a card catalogue of words in Timucua, the ancient extinct language of Florida, taken from the grammar and catechisms of Father Pareja. In May, Dr. Swanton visited New York in order to examine rare Timucua works in the Buckingham Smith collection of the New York Historical Society. Through the courtesy of this society and of the New York Public Library arrangements have been made for furnishing photostat copies of these rare and important books, and the reproductions were in preparation at the close of the fiscal year.

In connection with the researches of Dr. Swanton it is gratifying to report that he was awarded last spring the second Loubat prize in recognition of his two publications—" Tlingit Myths and Texts " and " Indian Tribes of the Lower Mississippi Valley and Adjacent Coast of the Gulf of Mexico "—both issued by the bureau.

Mrs. M. C. Stevenson, ethnologist, devoted her time to the conclusion of her researches among the Tewa Indians of New Mexico and to the preparation of a paper on that interesting and conservative people. A preliminary table

of contents of the proposed memoir indicates that her studies of the customs and beliefs of the Tewa will be as comprehensive as the published results of her investigations of the Sia and the Zuñi tribe of the same State. As at present outlined, the work, which will soon be completed, will contain six sections, dealing with the following subjects, respectively: Philosophy, anthropic worship and ritual, zoic worship, social customs, material culture, and history.

Dr. Truman Michelson, ethnologist, continued his studies among the Algonquian tribes. In the middle of July, 1912, he proceeded to the Fox Indians, at Tama, Iowa, from whom a large additional body of mythological material was obtained; this, in connection with the myths and legends in the form of texts gathered during the previous season, approximates 7,000 pages. When the translation of this material shall have been finished it will form one of the most exhaustive collections of mythology of any Indian tribe. It is noteworthy that these myths and tales differ essentially in style from those gathered by the late Dr. William Jones (scarcely any of whose material has been duplicated by Dr. Michelson)—a fact that emphasizes the necessity of recording such material in the aboriginal tongue. It may be added that the myths and tales collected are also important in the light they shed on the dissemination of myths. Study of the social and ceremonial organization of the Fox Indians was likewise continued, and especially full notes were obtained on their Religion dance. Many of the songs of one of the drums were recorded on a dictaphone and several photographs of the native ball game were secured.

Dr. Michelson next proceeded to Haskell Institute, the nonreservation Indian school at Lawrence, Kans., for the purpose of obtaining notes on Atsina (Gros Ventre) and several other Algonquian languages, the results of which show definitely that Atsina shares with Arapaho all the deviations from normal Algonquian, and that Potawatomi is further removed from Ojibwa, Ottawa, and Algonkin than any one of these is from the others.

Dr. Michelson next visited the Munsee, in Kansas, but found that, unfortunately, little is now available in the way of information except as to their language, which is still spoken by about half a dozen individuals, though none employ it habitually.

The Delawares of Oklahoma were next visited, Dr. Michelson finding that their aboriginal customs are still retained to a large extent. Extended observations were made on several dances, and, to a lesser extent, on the social organization. From a study of the Delaware language, together with the Munsee dialect of Kansas, it was ascertained, as had previously been surmised, that the Delaware language of the early Moravian missionary Zeisberger represents no single dialect but a medley of several dialects.

On his way to Washington Dr. Michelson stopped again at Tama to obtain additional notes on the Fox Indians; at the same time he succeeded in arranging for the acquirement of certain sacred packs for the National Museum. He also visited Chicago and New York for the purpose of making comparative observations on the material culture of the Fox tribe, based on collections in the museums of those cities.

On his arrival in Washington, at the close of December, Dr. Michelson undertook the translation and study of the Fox myths. The results indicate that very great firmness in the word unit in Algonquian is more apparent than real, and that the classification of stems must be revised. Dr. Michelsen also brought to conclusion his translation of the Kickapoo myths and tales, collected by the late Dr. Jones, to which were added notes on Kickapoo grammar and comparative notes on the myths and tales, the whole making somewhat more than 300 pages.

Through correspondence Dr. Michelson succeeded in arranging for the acquirement of other sacred packs of the Fox Indians, which have been deposited in the National Museum. He also aided in furnishing information in answer to inquiries by various correspondents, and from

time to time supplied data for incorporation in a new edition of the Handbook of American Indians.

From the investigations of the bureau it seemed that the Siouan and Muskhogean languages resembled each other morphologically. In view of these circumstances it was deemed desirable that the Catawba, one of the Siouan tongues, should be restudied, and accordingly, toward the close of May, 1913, Dr. Michelson proceeded to South Carolina, where the remnant of the Catawba tribe still reside. Unfortunately, it was found that the language is all but extinct, not even half a dozen persons being able to recall phrases, although isolated words can still be had in goodly number. Owing to this paucity of text material it is hardly likely that the grammar of Catawba will ever be completely elucidated, and as no comparative study with other Siouan dialects has yet been made, it is not practicable at present to say with which Siouan group the language is most closely associated. A considerable number of native songs are still remembered by the surviving Catawba, nearly all of which Dr. Michelson succeeded in recording by dictaphone.

Mr. J. N. B. Hewitt, ethnologist, was occupied during the year in translating unedited Seneca texts of myths which were collected by himself in 1896 and at other times on the Cattaraugus Reservation in western New York and on the Grand River Reservation in Ontario, Canada. These myths, legends, and tales number 13 in all. In addition, Mr. Hewitt undertook the editing of two Seneca texts—" The Legend of S‘hagowē′‘not‘hă’, or The Spirit of the Tiḍes," and " The Tale of Doä’đanégĕ^{n}·’ and Hotkwisdadegĕ^{n}″ă‘ "—recorded by himself in the form of field notes in 1896 and aggregating 95 typewritten pages. At the close of the fiscal year about one-third of this work was completed. To these texts interlinear translations are to be added for the purpose of aiding in the grammatic study of the Seneca tongue.

Mr. Hewitt also devoted much time to the collection and preparation of data for answers to correspondents of the

bureau, especially with reference to the Iroquoian and Algonquian tribes.

Mr. Francis La Flesche, ethnologist, continued his investigations of the ethnology of the Osage Indians, giving particular attention to their rituals and accompanying songs. He was enabled to record on the dictaphone the songs and fragments of the rituals belonging to the Waxobe degree of the No^n'ho^{n}zhi^{n}ga rites, of which, as noted in the last annual report, he has been making a special study. These rituals have been transcribed and, with the 84 songs that have been transcribed in musical notation by Miss Alice C. Fletcher, comprise 66 typewritten pages.

Mr. La Flesche has also been able to record the No^n'zhi^{n}zho^n, or Fasting degree, of the Puma and Black Bear gentes. These two organizations are closely related; they now not only use in common the songs and rituals of the No^n'ho^{n}zhi^{n}ga rites, but they even go to the extent of exchanging gentile personal names as full recognition of their relationship. The No^n'zhi^{n}zho^n degree employs 12 rituals and numerous songs, of which latter 81 have been recorded. These songs are divided into two great groups, first of which is known as "The Seven Songs," having 16 sets, and the second, "The Six Songs," having 17 sets. The Osage texts of these rituals and songs cover 207 pages, about three-fourths of which have been finally typewritten. The 81 songs have been transcribed in musical notation by Miss Fletcher, while the translation of the rituals and the words of the songs is in progress.

In the autumn of 1912 Mr. La Flesche was fortunate in securing in full the Ni'k'i degree of these intricate Osage rites. Hitherto he had been able to obtain only the beginning of this degree, but his informant was finally induced to recite it in its entirety, comprising 1,542 lines. The real title of this degree is Ni'k'i No^{n}k'o^n, "The Hearing of the Words of the People." In it the genesis of the tribe is given in a story made up of myth, legend, and symbolism, the whole being clearly devised to keep the

people ever mindful of the necessity of an orderly and authoritative conduct of war. It goes to show that the principle of war was early recognized by the Osage as the surest means by which not only tribal and individual life might be safeguarded against strange and hostile tribes, but also as the means by which the tranquil enjoyment of game and other natural products of their environment might be won. It is to this coveted tranquillity that the closing lines of many of the rituals refer, invariably likening it to a "serene day." This degree employs ritual almost entirely, there being only 10 songs. The native ritual comprises 57 typewritten pages, of which a large part has been translated.

In the spring of 1913 Mr. La Flesche obtained the Rush Mat Weaving degree of the Puma and Black Bear gentes. Only the "Seven Songs" spoken of before, with various ceremonial forms, are employed in this degree, the "Six Songs" being entirely omitted. The distinguishing features are the ceremonial weaving of the rush mat for the sacred case in which were enshrined the bird and other sacred objects, the renewal of all the articles that make up the sacred bundle, and the ceremonial stitching of the ends of the case. In some respects this is one of the most extraordinary degrees of the Osage that Mr. La Flesche has yet observed, since in its performance there are used 70 brass kettles, 70 red-handled knives, and 70 awls in making the various articles, all of which the votary is obliged to furnish, together with other expensive articles that constitute the fees of the initiator and other officiating No^{n}'ho^{n}zhi^{n}ga, as also 70 pieces of choice jerked meat for distribution among the members attending the initiation. Three rituals not used in the other degrees are employed in this, namely, the Green Rush ritual, the Bark ritual, and the Stitching and Cutting ritual. There are 61 pages of Osage text, about half of which have been transcribed.

Mr. La Flesche also obtained the rituals and songs of the Washabe Athi^{n}, "The Carrying of a Dark Object," with full description of the various processions and cere-

monial forms. This is a war ceremony, which, although not counted as a degree, is a rite to which the seven degrees lead. The name of this ceremony is derived from the war insignia, which is the charcoal ceremonially prepared from certain sacred trees, and which symbolizes the black marks denoting the birds and animals used to typify strength, courage, and fleetness. Mr. La Flesche's Osage informant regards this as the final act of the seven degrees. The Osage text comprises 90 pages, nearly one-half of which has been transcribed, together with 36 songs, which have been transcribed by Miss Fletcher, and 7 diagrams.

Mr. La Flesche was fortunate enough to procure the sacred bundle of the Deer gens and the reed-whistle bundle of the Wind gens; the contents of the latter are of exceptional interest. Mrs. Brogahige, one of the ceremonial weavers of the Osage, at considerable sacrifice to herself, presented Mr. La Flesche two sacred looms, one of which is used in weaving the buffalo-hair case, and the other in weaving the rush case for the sacred bird. These packs, together with specimens of ceremonially made burden straps which Mr. La Flesche collected, have been placed in the National Museum.

Dr. Franz Boas, honorary philologist, continued the preparation of the material for the Handbook of American Indian Languages. As stated in the last annual report, the manuscript of the grammar of the Chukchee language, to appear in part 2 of this handbook, was completed and in its final form was discussed with the author, Mr. Waldemar Bogoras, during the visit of Dr. Boas to Berlin in the summer of 1912. The results of these discussions were embodied in the work, the manuscript was delivered, and the typesetting commenced. At the same time Dr. Boas studied the Koryak texts collected by Mr. Bogoras, published in accordance with the plan previously outlined, at the expense of the American Ethnological Society, and the indispensable references were embodied in the grammatical sketch.

The Coos grammar by Dr. Leo J. Frachtenberg was completed, so far as the work of the editor, Dr. Boas, is concerned, the page proofs having been finally revised.

The manuscript for the Siuslaw grammar, also by Dr. Frachtenberg, was submitted and the editing considerably advanced. This will be completed as soon as the entire series of Siuslaw texts are in print—a work that has been undertaken under Dr. Boas's editorship by Columbia University. All the collected texts are now in type, so that examples can be added to the manuscript of the grammar.

Dr. Frachtenberg remained in Siletz, Oreg., throughout the year for the purpose of revising on the spot the materials on the Oregon languages. He was engaged in collecting and arranging the Alsea material for part 2 of the Handbook of Languages, and in preparing for the discussion of his Molala linguistics. The rapid disappearance of the Calapooya may make it necessary, however, to complete the field work on the language of this people before closing the work on the other manuscripts, even though this procedure may entail delay in the printing of the volume.

Dr. Alexander F. Chamberlain, of Clark University, who has undertaken the preparation of a grammar of the Kutenai language, expects to deliver his manuscript early in the new fiscal year. The printing of this sketch must necessarily be delayed until the text material is available in print.

Miss Haessler continued her preparations for a careful revision of the Dakota Dictionary by Riggs—a work made necessary by reason of the need of greater precision in phonetics and translation, as well as of a more systematic arrangement of the material. Miss Haessler expected to complete all the preliminary work by the summer of 1914, so that, should facilities be available, she would then be able to undertake the required field work.

Miss Frances Densmore continued her studies in Indian music, devoting special attention to that of the Sioux, and

पुस्तकालय
गुरुकुल कांगड़ी विश्वविद्यालय

तिथि	संख्या	तिथि	संख्या

तिथि	संख्या	तिथि	संख्या

during the year submitted three papers, comprising 252 pages of manuscript, original phonographic records and musical transcription of 107 songs, and 23 original photographic illustrations. Three subjects have been exhaustively studied and a fourth is represented in such manner that the results may be regarded as ready for publication. The three principal subjects are the sacred stones, dreams about animals, and the buffalo hunt. The fourth subject referred to relates to the warpath and is represented by about 20 songs, but it awaits further study of the military societies. A special group of songs consists of those which have been composed and sung by the Sioux in honor of Miss Densmore.

A study of the music of the Mandan and Hidatsa at Fort Berthold, N. Dak., was made by Miss Densmore in the summer of 1912, in cooperation with the Historical Society of the State of North Dakota. The results of this investigation consist of a manuscript of about 50 pages, with transcriptions of 40 songs.

Miss Densmore also read the proofs of Bulletin 53 (Chippewa Music—II), which is now in press.

Mr. W. H. Holmes, head curator of the department of anthropology of the United States National Museum, continued the preparation of the Handbook of American Archæology for publication by the bureau, as far as the limited time available for the purpose permitted. Aside from the preparation of the text and illustrations for parts 1 and 2 of this handbook, Mr. Holmes made field observations among the ancient mica mines in western North Carolina and among mounds and village sites in South Carolina and Georgia. He also visited a number of museums for the purpose of examining the collections of archæological material, among them being the museums of Boston, Andover, New York City, Philadelphia, Columbus, Chicago, Milwaukee, Madison, Davenport, and St. Louis.

Mr. D. I. Bushnell, jr., made good progress in the compilation of the Handbook of Aboriginal Remains East of

the Mississippi, the manuscript material for which, recorded on cards, now approximates 16,000 words. The collated material has been derived from (1) replies to circular letters addressed to county clerks in all of the States east of the Mississippi, (2) communications from various societies and individuals, and (3) publications pertaining to the subject of American antiquities. It is gratifying to state that there are very few areas not covered by the material already in hand, and it is expected that through the systematic manner in which Mr. Bushnell is prosecuting the work the handbook will be as complete as it is practicable to make it by the time it is ready for publication.

The investigations conducted jointly in 1910 and 1911 by the bureau and the School of American Archæology have borne additional fruit. An extended memoir on the Ethnogeography of the Tewa Indians, by J. P. Harrington, was received and will appear as the "accompanying paper" of the Twenty-ninth Annual Report, now in press. Three bulletins, namely (No. 54), The Physiography of the Rio Grande Valley, New Mexico, in Relation to Pueblo Culture, by Edgar L. Hewett, Junius Henderson, and W. W. Robbins; (No. 55) The Ethnobotany of the Tewa Indians, by Barbara W. Freire-Marreco, W. W. Robbins, and J. P. Harrington; and (No. 56) The Ethnozoology of the Tewa Indians, by Junius Henderson and J. P. Harrington, were also presented as a part of the results of the joint expeditions and are either published or in process of printing. Mr. Harrington also made progress in the preparation of his report on the Mohave Indians, and Miss Freire-Marreco is expected to submit shortly an extended paper on the Yavapai tribe. There remains to be mentioned in this connection another memoir, namely, An Introduction to the Study of the Maya Hieroglyphs, by Sylvanus G. Morley; while not a direct product of the joint work of the bureau and the school, this is in a measure an outgrowth of it. The manuscript, together with the accompanying illustrations, has been submitted to the bureau, but is now temporarily in the author's hands for slight revision.

Since the publication of the Handbook of American Indians, through which additional popular interest in our aborigines has been aroused, it has been the desire to make a beginning toward the preparation of a series of handbooks devoted to the Indians of the respective States. The opportunity was fortunately presented toward the close of the fiscal year, when the bureau was enabled to enlist the aid of Dr. A. L. Kroeber, of the University of California, who has kindly consented to undertake the preparation of the initial volume of the series, to be devoted to the Indians of California. It is planned to present the material in each volume in as popular a form as practicable, in order that it may be made of the greatest use to schools, and it is hoped that the means may be soon available to make possible the extension of the series to other States.

Under a small allotment from the bureau, Mr. James Murie continued his studies of Pawnee ceremonies. He devoted special attention to the medicine rites, and on June 13, 1913, submitted a description of the ritual pertaining to the "Purification of the Buffalo Skull."

The transcription of the manuscript French-Miami Dictionary in the John Carter Brown Library at Providence, R. I., to which attention has been directed in previous reports, was finished by Miss Margaret Bingham Stillwell, who submitted the last pages of the vocabulary (which number 1,120 in all) early in January, 1913. The bureau is under obligations to Mr. George Parker Winship, librarian of the John Carter Brown Library, for his generous cooperation in placing this valued document at the disposal of the bureau and to Miss Stillwell for the efficient manner in which this difficult task was accomplished.

In the latter part of the fiscal year Mr. Jacob P. Dunn, of Indianapolis, in whose hands the French-Miami Dictionary was placed for study, commenced the annotation of the transcription and the addition of English equivalents. This necessitated a journey to Oklahoma, where Mr. Dunn enlisted the services of a Miami Indian as an

interpreter. The result of these studies consists of (*a*) the French-Miami-English Dictionary, from *Abbaiser* to *Cajeux;* (*b*) The History of Genesis, Chapter I, being Peoria text with Miami-English translation; (*c*) English-Miami Dictionary, from *Abandon* to *Aim;* (*d*) Wissakatcakwa Stories, recorded in Peoria by the late Dr. Gatschet, for which Mr. Dunn has made an interlinear translation.

The compilation of the List of Works Relating to Hawaii was continued by Prof. Howard M. Ballou, of the College of Hawaii, who from time to time has submitted additional titles. The recording of the material by more than one person necessarily resulted in more or less inconsistency in form; consequently the manuscript, which consists of many thousands of cards, has been in need of editorial revision in order to insure uniformity. For this revision the bureau has been fortunate in enlisting the services of Mr. Felix Neumann, an experienced bibliographer, who is making progress in the work.

PUBLICATIONS

The editorial work of the bureau has been conducted as usual by Mr. J. G. Gurley, editor. The following publications were issued during the year:

Twenty-eighth Annual Report, containing "accompanying papers" as follows: (1) Casa Grande, by Jesse Walter Fewkes; (2) Antiquities of the Upper Verde River and Walnut Creek Valleys, Arizona, by Jesse Walter Fewkes; (3) Preliminary Report on the Linguistic Classification of Algonquian Tribes, by Truman Michelson.

Bulletin 30, Handbook of American Indians North of Mexico, edited by Frederick Webb Hodge. By concurrent resolution of Congress, in August, 1912, a reprint of this bulletin was ordered in an edition of 6,500 copies, of which 4,000 were for the use of the House of Representatives, 2,000 for the use of the Senate, and 500 for the use of the bureau. This reprint, in which were incorporated such

desirable alterations as could be conveniently made without affecting the pagination of the work, was issued in January, 1913.

Bulletin 52, Early Man in South America, by Aleš Hrdlička, in collaboration with William H. Holmes, Bailey Willis, Fred. Eugene Wright, and Clarence N. Fenner.

Bulletin 54, The Physiography of the Rio Grande Valley, New Mexico, in Relation to Pueblo Culture, by Edgar Lee Hewett, Junius Henderson, and Wilfred William Robbins.

The work on the other publications during the year may be summarized as follows:

Twenty-ninth Annual Report ("accompanying paper," The Ethnogeography of the Tewa Indians, by John Peabody Harrington). Manuscript prepared for the printers and nearly half of the composition finished.

Thirtieth Annual Report ("accompanying papers": (1) Animism and Folklore of the Guiana Indians, by Walter E. Roth; (2) Tsimshian Mythology, by Franz Boas; (3) Ethnobotany of the Zuñi Indians, by Matilda Coxe Stevenson). Editing of the third paper and to a considerable extent that of the first paper completed.

Bulletin 40, Handbook of American Indian Languages, by Franz Boas—Part 2. Work on the Coos section nearly finished and composition of the Chukchee section begun. Two sections (Takelma and Coos) are now "made up," aggregating 429 pages.

Bulletin 46, A Dictionary of the Choctaw Language, by Cyrus Byington, edited by John R. Swanton and H. S. Halbert. The editors have revised two galley proofs of the Choctaw-English section of this dictionary and have practically finished preparations for the printers of the English-Choctaw section. The first part of this bulletin is now in process of paging.

Bulletin 53, Chippewa Music—II, by Frances Densmore. Manuscript edited and the several proofs read, including proofs of 180 pieces of music. At the end of the

year the bulletin was held in the Printing Office awaiting receipt of the necessary paper stock.

Bulletin 55, Ethnobotany of the Tewa Indians, by Barbara Whitchurch Freire-Marreco, Wilfred William Robbins, and John Peabody Harrington. Manuscript edited and the work in galley form at the close of the year.

Bulletin 56, Ethnozoology of the Tewa Indians, by Junius Henderson and John Peabody Harrington. Manuscript edited and the work in page form at the close of the year.

In accordance with the act of Congress approved August 23, 1912, the entire stock of publications of the bureau, with the exception of a few copies of each available work which have been retained at the Smithsonian Institution for special purposes, was transferred to the Government Printing Office in October, 1912, for distribution from the office of the superintendent of documents on order from the bureau. It has been found that this plan of distribution is highly successful, and, of course, much less expensive to the bureau.

The correspondence relating to publications, of which 15,070 were distributed during the year, was conducted under the immediate supervision of Miss Helen Munroe, of the Smithsonian Institution. The distribution of the publications may be summarized as follows:

Series:	Copies.
Report volumes and separate papers	3,895
Bulletins	11,040
Contributions to North American Ethnology	15
Introductions	7
Miscellaneous publications	113
	15,070

The demand for the Handbook of American Indians (Bulletin 30) continues unabated, by reason of the wide scope of the work, its popular form of treatment, and its usefulness to schools. There is an increasing demand for publications relating to Indian arts and crafts, and to archeology. The activity in the establishment of organ-

izations of Camp Fire Girls throughout the country has resulted in a flood of requests for information relative to Indian customs names, etc.

ILLUSTRATIONS

As in the past, the preparation of illustrations for use in connection with the publications of the bureau, as well as the making of photographic portraits of the members of visiting deputations of Indians, continued in the immediate charge of Mr. De Lancey Gill, illustrator, whose work during the year included the making of negatives of 113 visiting Indians and of 93 miscellaneous ethnologic subjects; he also developed 298 negatives exposed by members of the bureau in their field work, printed 975 photographs for official publication, exchange, and presentation to Indians, and prepared 105 drawings for reproduction as illustrations for the publications of the bureau.

The tribes or pueblos represented by Indians who visited Washington during the year are: Acoma, Apache, Cheyenne, Chippewa, Cochiti, Crow, Isleta, Kiowa, Osage, Passamaquoddy, Ponca, San Juan, Santa Clara, Shoshoni, Sioux, Taos, and Wichita. Among the more important Indians whose portraits were made may be mentioned Plenty Coups and Medicine Crow (Crow tribe), Big Man and Iron Bear (Brulé Sioux), Hollow Horn Bear, Red Cloud, and Red Hawk (Teton Sioux), Daybwawaindung (Chippewa), and Two Moons (Cheyenne). Many requests are made by correspondents for prints from the large collection of negatives in possession of the bureau, but it has not been possible to supply these, owing to lack of means, although in many cases they are desired for educational purposes. The series of photographs of representative Indians, from 55 tribes, which was made during the last fiscal year for special exhibition at the New York Public Library, has been borrowed from the bureau by the Public Library Commission of Indiana for exhibition in the public libraries throughout the State. In the work of the photographic laboratory Mr. Gill was assisted by Mr. Walter J. Stenhouse.

LIBRARY

The library of the bureau continued in immediate charge of Miss Ella Leary, librarian, assisted by Mrs. Ella Slaughter. During the year the accessions comprised 562 volumes (of which 129 were purchased) and 244 pamphlets, bringing the total number of volumes in the library to 18,532, and the pamphlets to 12,744. The periodicals currently received by the bureau, of which there are several thousand unbound parts, number 629; of these all but 18 are obtained in exchange for the bureau's publications. Special attention was paid during the year to filling lacunæ in the periodical series.

The cataloguing kept pace with the new accessions, and some progress was made in cataloguing ethnologic and related articles in the earlier serials. A monthly bulletin for the use of the members of the bureau staff was compiled and posted by the librarian, who also made a beginning in the preparation of a list of writings on the music of American Indians.

As in the past, it was necessary to draw on the collections of the Library of Congress, about 300 volumes having been borrowed during the year. On the other hand, the library of the bureau is frequently consulted by officers of the departments of the Government, as well as by students not connected with the Smithsonian Institution.

While many volumes are still without binding, the condition of the library in this respect has greatly improved during the last few years; 493 volumes were bound at the Government Printing Office during the year.

COLLECTIONS

The following collections were made by the bureau or by members of its staff during the fiscal year and transferred to the National Museum:

54311. Six photographs (unmounted) taken by A. J. Hortswill, San Jose, Mindoro, P. I., among the natives of Mindoro Island. Gift to the bureau by Munn & Co., New York.

54465. Sacred pack of the Fox Indians of Iowa. Purchased for the bureau by Dr. Truman Michelson.

54691. Five pieces of cotton painted with Assyrian subjects. Received by the bureau from an unknown source.

54798. Three sacred looms and seven burden straps of the Osage Indians. Collected by Francis La Flesche.

54933. Three fragments of Indian pottery found at Red Willow, Nebr., by Mrs. Ada Martin, by whom they were presented.

54934. Sacred bundle of the Fox Indians. Purchased through Dr. Truman Michelson.

54946. Two sacred bundles of the Osage Indians. Purchased by Francis La Flesche.

55002. Sacred bundle of the Fox Indians. Purchased through Dr. Truman Michelson.

55075. An Osage buffalo-hair rope (reata) and an Osage woven belt. Purchased through Francis La Flesche.

55234. Two ethnological objects from the natives of British Guiana, presented to the bureau by Dr. Walter E. Roth, of Pomeroon River, British Guiana.

55323. Set of five plum-seed gaming dice of the Omaha Indians and a bottle of seeds used by the same Indians as perfume. Presented by Francis La Flesche.

55420. Pair of Osage ceremonial moccasins and an Osage ceremonial "pipe." Presented by Francis La Flesche.

PROPERTY

As stated in previous reports, the property of the bureau of greatest value consists of its library, manuscripts for reference or publication, and photographic negatives. A reasonable number of cameras, dictagraphs, and other apparatus, chiefly for use in the field, as well as a limited stock of stationery and office supplies, necessary office furniture, and equipment, are also in possession of the bureau. The sum of $893.21 was expended for office furniture (including fireproof filing cases) during the year, $452.57 for apparatus (including typewriters, cameras, dictagraphs, etc.), and $258.45 for books and periodicals.

The manuscripts of the bureau, many of which are of extreme value, are deposited in metal cases in a small room in the north tower of the Smithsonian Building, which

should be made as nearly fireproof as possible. Requests for a small appropriation to protect the manuscripts against possible destruction have been made in the past, but unfortunately the means have not been granted. The manuscripts, which have been in the immediate care of Mr. J. N. B. Hewitt, have increased from time to time during the year, chiefly by the temporary deposit of materials preparatory to editing for publication. Mention may here be made, however, of the gift of some manuscript Chippewa letters from the Rev. Joseph A. Gilfillan, and the acquirement of a photostat copy of the Motul-Maya Dictionary, made at the expense of the bureau from the original in the John Carter Brown Library, at Providence, R. I., as elsewhere noted. Mention may also be made of various vocabularies or parts of vocabularies, 23 items in all, which were restored to the bureau by Mrs. Louisa H. Gatschet, who found them among Dr. Gatschet's effects.

MISCELLANEOUS

Quarters.—Since the beginning of 1910 the offices of the bureau have occupied nine rooms in the north tower of the Smithsonian Building, and a room (the office of the ethnologist in charge) on the north side of the third floor of the eastern wing, while the library has occupied the entire eastern gallery of the large exhibition hall on the first floor, and the photographic laboratory part of the gallery in the southeastern section of the old National Museum building. While the natural lighting of the rooms in the north tower, by reason of the thickness of the walls and the narrowness of the windows, is inadequate, and the distance from the library and the photographic laboratory makes them not readily accessible, the office facilities are far better than when the bureau was housed in cramped rented quarters. Aside from the photographic laboratory and one room in the north tower, no part of the bureau's quarters is provided with running water. It is presumed that after the rearrangement of the large exhibition hall in the Smithsonian Building and

its adaptation to general library purposes the facilities of the bureau library will be greatly improved.

Office force.—The office force of the bureau has not been augmented, although the correspondence has greatly increased owing to the growing demand on the bureau for information respecting the Indians. The copying of the rough manuscripts, field notes, etc., prepared by members of the bureau, as well as the verification of quotations, bibliographic citations, and similar work of a minor editorial nature, necessitate the employment of temporary aid from time to time. Most of the answers to correspondents who desire information of a special character have been prepared by the ethnologist in charge, but every member of the bureau's scientific staff is frequently called on for the same purpose to furnish information pertaining to his particular field of knowledge.

RECOMMENDATIONS

It is difficult to extend the systematic researches of the bureau along new and necessary lines without an increase of appropriations. When a special research is undertaken, several years are often required to finish it, consequently the prospective income of the bureau for a considerable period is required to carry out adequately the work in hand. Opportunities are often presented for conducting investigations in new fields which have to be neglected owing to lack of means. An increase in the appropriations of the bureau has been urged for several years, but unfortunately the estimates have not been met with additional funds.

Respectfully submitted.

F. W. Hodge,
Ethnologist in charge.

Dr. Charles D. Walcott,
Secretary of the Smithsonian Institution,
Washington, D. C.

ACCOMPANYING PAPER

160658°—34 ETH—22——3

A PREHISTORIC ISLAND CULTURE AREA OF AMERICA

By J. WALTER FEWKES

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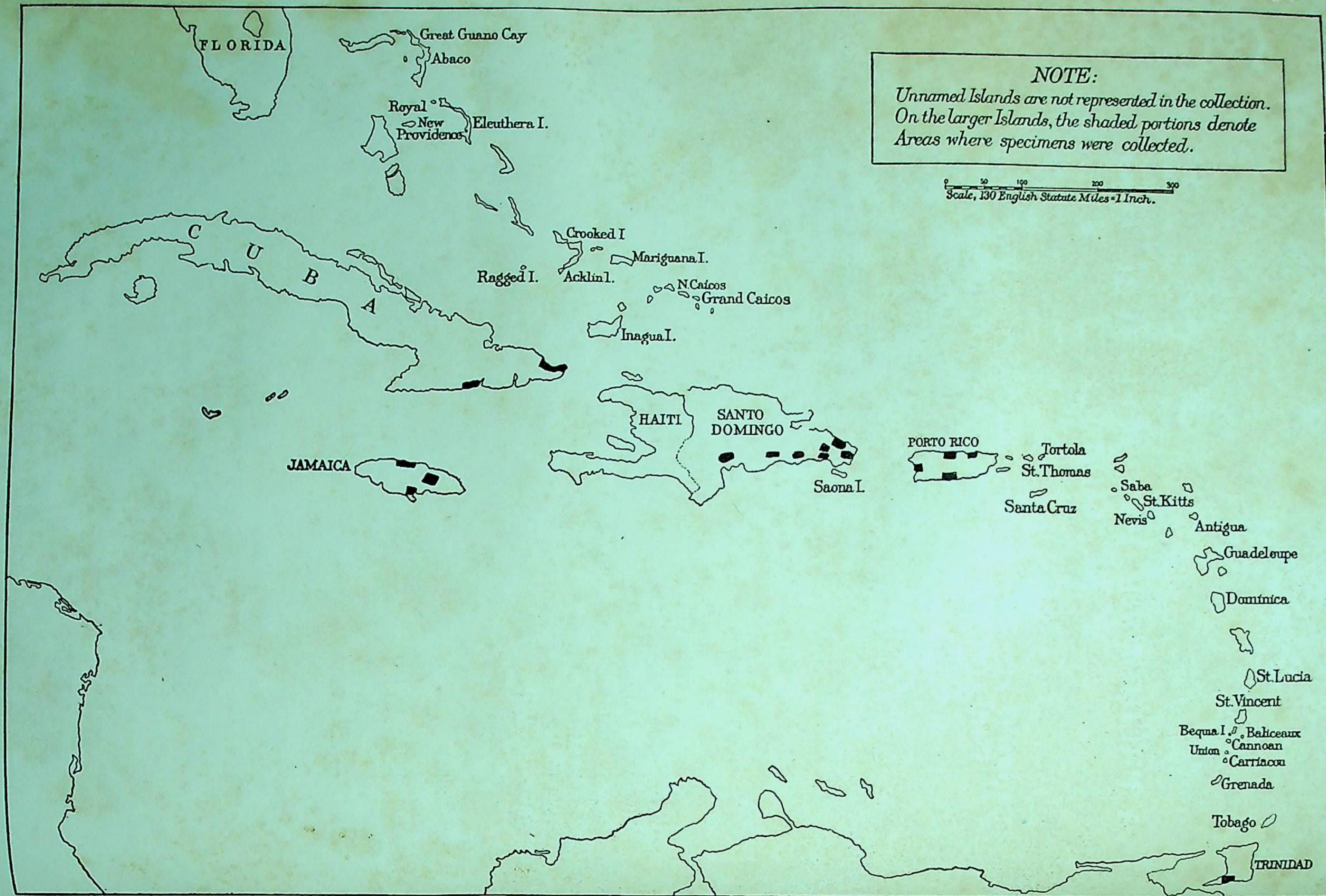
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PLATE 55. *A*, No. 2/7750; *B*, No. 2/7736; *C*, No. 1/146; *D*, No. 2/9867; *E*, No. 2/9866.
PLATE 56. *A*, No. 2/9987; *B*, No. 2/9947; *C*, No. 2/8635; *D*, No. 2/9884.
PLATE 57. *A*, No. 2/9967; *B*, No 2/9984; *C*, No. 2/8627; *D*. No. 2/8627.
PLATE 58. *A*, No. 2/9872; *B*, No. 1/4407.
PLATE 59. *A*, No. 2/9990; *B*, No. 2/8658; *C*, No. 2/8677.
PLATE 60. *A*, No. 2/8668; *B*, No. 2/8262; *C*, No. 2/8616; *D*, No. 2/9874; *E*, No. 2/9873.
PLATE 61. *A*, No. 2/9864; *B*, No. 2/8665; *C*, No. 2/8659; *D*, No. 2/9951; *E*, No. 2/8674; *F*, No. 2/8653; *G*, No. 2/8654; *H*, No. 2/7750.
PLATE 62. *A*, No. 2/7784; *B*, No. 1/4427; *C*, No. 1/4427; *D*, No. 1/4428.
PLATE 63. *A*, No. 2/7784; *B*, No. 1/4427; *C*, No. 8125.
PLATE 64. *A*, No. 2/8271; *B*, No. 8125.
PLATE 65. *A*, No. 1/4427; *B*, No. 2/57; *C*, No. 1/4427.
PLATE 66. *A*, No. 1/4425; *B*, No. 1/8692; *C*, No. 1/4427; *D*, No. 3509.
PLATE 67. *A*, No. 2/8271; *B*, No. 8125; *C*, No. 1/4427; *D*, No. 1/4427; *E*, No. 2/7777; *F*, No. 1/4427.
PLATE 68. *A*, No. 1/4429; *B*, No. 2/8752; *C*, No. 1/4427.
PLATE 69. *A*, No. 2/7740; *B*, No. 2/8305; *C*, No. 2/8304; *D*, No. 2/7765; *E*, No. 2/3806; *F*, No. 9701; *G*, No. 2/8274; *H*, No. 2/7741; *I*, No. 2/9139; *J*, No. 3/1970; *K*, No. 9718; *L*, No. 1/4382; *M*, No. 1/4390; *N*, No. 1/4390; *O*, No. 1/4390.
PLATE 70. *A*, No. 2/3537; *B*, No. 2/8273; *C*, No. 2/3536; *D*, 2/7778^{a}; *E*, No. 2/9825; *F*, No. 2/3535; *G*, No. 2/7778; *H*, No. 2/8316.
PLATE 71. *A*, No. IVC^{a} 286; *B*, No. IVC^{b} 293; *C*, No. IVC^{b} 1017; *D*, No. IVC^{a} 303.
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PLATE 74. *B*, No. IVC^{b} 264; *C*, No. IVC^{b} 135.
PLATE 75. *A*, No. IVC^{b} 152; *B*, No. 2/9145; *C*, No. IVC^{b} 134.
PLATE 76. *A*, *B*, No. IVC^{b} 300; *C*, *D*, IVC^{b} 299.
PLATE 77. *A*, No. IVC^{b} 159; *B*, No. IVC^{b} 253; *C*, No. IVC^{b} 1164; *D*, No. IVC^{b} 1165.
PLATE 78. *A*, *B*, No. IVC^{b} 105; *C*, No. IVC^{b} 163; *D*, No. IVC^{b} 165; *E*, No. IVC^{b} 166; *F*, No. IVC^{b} 292.
PLATE 79. *A*, No. IVC^{b} 178; *B*, No. IVC^{b} 211; *C*, No. IVC^{b} 408; *D*, *E*, No. IVC^{b} 1135; *F*, No. IVC^{b} 171.
PLATE 80. *A*, No. IVC^{b} 170^{b}; *B*, IVC^{b} 164; *C*, No. IVC^{b} 692; *D*, No. IVC^{b} 170^{a}; *E*, No. IVC^{b} 153.
PLATE 81. *A*, No. IVC^{b} 703; *B*, IVC^{b} 174; *C*, IVC^{b} 151; *E*, No. IVC^{b} 169.
PLATE 83. *B*, No. IVC^{b} 1754.
PLATE 88. *A*, IVC^{b} 1781; *B*, IVC^{a} 84; *C*, IVC^{b} 30.
PLATE 90. *A*, *B*, *C*, 3/6312.
PLATE 91. *B*, *C*, No. 3045.
PLATE 93. *B*, *C*, No. IVC^{b} 1778; *D*, *E*, No. IVC^{b} 78.
PLATE 94. *A*, No. IVC^{b} 1777.
PLATE 98. *A*, *A'*, No. 2/1988; *B*, No. 1/4018.
PLATE 100. *A*, *B*, IVC^{b} 1326; *C*, *D*, No. 3/3936.
PLATE 101. *A*, No. 3694; *D*, No. IVC^{b} 55.
PLATE 102. *A*, No. IVC^{b} 34; *B*, No. IVC^{b} 75.

PLATE 103. *A*, No. IVC^{b} 54; *B*, No. 63488; *C*, No. IVC^{b} 45.
PLATE 106. *B*, No. 1/2300; *C*, No. 3695.
PLATE 107. *A*, No. IVC^{b} 45.
PLATE 108. *C*, No. 3695; *D*, No. 3/3939.
PLATE 110. *A*, No. IVC^{b} 125; *B*, No. IVC^{b} 124.
PLATE 111. *A*, No. IVC^{b} 124; *B*, No. 1/4392; *C*, No. 2/3529; *D*, No. 3697.
PLATE 112. *A*, No. 5431; *B*, *C*, No. 9719.
PLATE 113. *A*, No. IVC^{b} 33; *B*, No. IVC^{b} 1335; *C*, No. IVC^{b} 1780.
PLATE 114. *A*, No. IVC^{b} 1776; *B*, No. IVC^{b} 12; *C*, No. IVC^{b} 13.
PLATE 115. *A*, *B*, No. 2/49; *C*, *D*, No. 1/123.
PLATE 116. *A*, No. 3826; *B*, No. 2/8722; *C*, No. 1/9718; *D*, No. 1/9711.
PLATE 117. *A*, No. IVC^{b} 92; *B*, No. 1/9714; *D*, *E*, No. IVC^{b} 1140; *F*, No. 1/9715; *G*, No. 2/7773.
PLATE 118. *A*, No. 1/9710; *B*, No. 1/152; *C*, No. IVC^{b} 2025.
PLATE 119. *A*, No. 2/60; *B*, No. 1/150; *C*, No. 1/151.

FIGURE 2. No. 2/3726.
FIGURE 3. No. IVC^{b} 308.
FIGURE 4. No. 1/129.
FIGURE 5. No. 2/3533.
FIGURE 6. No. 2/1993.
FIGURE 7. No. 2/3534.
FIGURE 8. No. 2/8725.
FIGURE 9. No. 2/9829.
FIGURE 11. No. 3/5910.
FIGURE 12. No. IVC^{b} 2175.
FIGURE 21. No. IVC^{b} 296.
FIGURE 22. No. IVC^{b} 296.
FIGURE 23. No. IVC^{b} 36.
FIGURE 24. No. IVC^{b} 123.
FIGURE 25. No. IVC^{b} 123.
FIGURE 26. No. IVC^{b} 1327.
FIGURE 27. No. IVC^{b} 1327.
FIGURE 28. No. 3/3937.
FIGURE 29. No. 1/140.
FIGURE 30. No. 3/2791.
FIGURE 32. No. 3693.
FIGURE 40. No. 8030 (U. S. N. M.)
FIGURE 42. No. 17080 (U. S. N. M.)
FIGURE 43. No. 8029 (U. S. N. M.)
FIGURE 45. No. 17082 (U. S. N. M.)
FIGURE 50. No. 3695.
FIGURE 51. No. 2/3529.
FIGURE 52. No. IVC^{b} 125.
FIGURE 53. No. 1/4392.
FIGURE 55. No. 3698.
FIGURE 56. No. 2/8269.
FIGURE 57. No. 3/1996.
FIGURE 59. No. IVC^{b} 79.
FIGURE 63. No. IVC^{b} 1788.



MAP OF WEST INDIES, SHOWING DISTRIBUTION OF OBJECTS IN THE MUSEUM OF THE AMERICAN INDIAN (HEYE FOUNDATION) IN 1914

A PREHISTORIC ISLAND CULTURE AREA OF AMERICA

A REPORT ON PREHISTORIC OBJECTS FROM THE WEST INDIES IN THE MUSEUM OF THE AMERICAN INDIAN (HEYE FOUNDATION) IN 1914

By J. Walter Fewkes

INTRODUCTION

In the year 1911 the author was invited by Mr. George G. Heye, of New York, to examine his collection of Indian antiquities with a view to publishing a report upon them. This collection, even then, was very extensive, and since that time has been greatly enlarged in number[1] of specimens, so that in October, 1914, it contained about 9,500 prehistoric objects from the West Indies. The localities in which these were found are indicated on plate 1 and the number of objects obtained from each island is shown in the following table:

GREATER AND LESSER ANTILLES

Trinidad	481	Guadeloupe	99
Tobago	200	Nevis	3
Grenada	864	St. Kitts	19
Carriacou	583	Saba	1
Union	5	Tortola	1
Connoun	12	St. Thomas	2
Balliceaux	49	Santa Cruz	219
Bequia	17	Porto Rico	386
St. Vincent	3, 228	Saona	171
Barbados	169	Republic of Santo Domingo	1, 478
Santa Lucia	414	Cuba	67
Dominica	66	Jamaica	569

[1] Since this article was written the number of Antillean objects in the Heye collection has greatly increased through the addition of the collections made by De Booy, Harrington, and others. Those from Trinidad, Santo Domingo, and the Virgin Islands have already been described by the late Theodoor de Booy, and a report on the Cuban collection made by Harrington will shortly be published.

BAHAMA ISLANDS

East Caicos	25	Crooked	2
Grand Caicos	68	Ragged	2
North Caicos	104	Eleuthera	2
Providence	59	Royal	1
West Caicos	20	New Providence	3
Great Inagua	20	Great Abaco	1
Mariguana	6	Mores	2
Plana Cayo	1	Little Abaco	2
Acklin	2		

Some of these specimens have been collected on various expeditions sent by Mr. Heye to the islands, but the majority have been purchased for him by Rev. Thomas Huckerby from collectors in the Lesser Antilles. A large part of this report is taken up in a consideration of these specimens.

The author also visited these islands to gather data in the field before writing this report,[1a] and spent the winter of 1912–13 in the Lesser Antilles, visiting Trinidad, St. Vincent, Barbados, St. Kitts, and Santa Cruz, where he obtained important material. He likewise made short visits to other islands, examining and making notes on specimens in various public and private collections on the islands, which are embodied in this memoir.

In order to get all possible information bearing on the forms and uses of these objects the author, in the winter of 1913–14, visited several European museums rich in West Indian objects, as those in Copenhagen, Denmark; Bremen and Berlin, Germany; Vienna and Prague, Austria. A considerable number of drawings were made on this trip, especially in the Berlin Museum, which is one of the richest in these objects on the European Continent. On a recent trip to Europe, Prof. Marshall H. Saville, of Columbia University, kindly obtained for the author several photographs of rare West Indian antiquities in the museums of London, Paris, and Madrid. The West Indian collection in the Heye Museum has also been enlarged by specimens purchased by the author from Señor Seiyo, of Arecibo, Porto Rico, and other local collectors.

The description of artifacts in the Heye Museum is accompanied by short accounts of related objects in other museums from the same islands from which the material was obtained. For convenience in the consideration of the subject the geographical method is adopted, the West Indies being divided into areas, which are supposed to indicate culture centers. The aim has been not so much a description of specimens as a consideration of a highly developed insular culture peculiar to America as a whole preparatory to a comparison of it with that of the neighboring continent.

[1a] The work was done under cooperation of the Heye Museum and the Bureau of American Ethnology.

Since the author began the preparation of this report many other archeologists have been led to enter the West Indian field.[2] Several collectors have been sent by Mr. Heye to the islands, and large collections have been brought to his museum from the Bahamas, Cuba, Santo Domingo, and Trinidad. In addition to work by the Heye Museum, other institutions have begun work, especially in Porto Rico, where important results are being brought to light by excavations in ball courts, shell heaps, and caves. The New York Academy of Science, in cooperation with the Insular government, made excavations in ball courts and shell-heaps of Porto Rico, under the supervision of Dr. F. Boas, in 1915. This wealth of new material sheds some light on many doubtful questions which pioneer students in Antillean archeology have been unable to answer, and will probably, when published, antiquate some of the theories brought forward by the author in this article. For obvious reasons no adequate reference can here be made to details of unpublished material, but it is very gratifying to the author that his prediction, made over a decade ago, that the West Indian field will afford a rich harvest to archeologists provided with ample means for intensive study on any one of the chain of islands connecting South America with the southeastern part of the United States, has been confirmed. Of all the islands superficially explored none still offer greater facilities for study than Santo Domingo and Porto Rico, the central points of the characteristic Antillean culture, where, no doubt, it originated. Much work remains to be done in this field.

The Antillean culture is sufficiently self-centered and distinctive to be called unique, although the germ originally came from South America.

HISTORICAL CONSIDERATIONS

Although the present memoir is concerned chiefly with material antedating written history, and the deductions drawn from it are objective rather than subjective, due attention should be given to the ethnology of the Arawak and Carib inhabiting in historic times the islands where these specimens were found. There is a large body of documentary evidence bearing on the use of some of these objects, especially survivals seen by the early discoverers. It is not designed to treat this material from the historical point of view, but a few general statements at the outset may clearly define the relation of the historic to the prehistoric.

This memoir relates to prehistoric times, while the documentary evidence deals with the historic epoch; the two methods of study should go hand in hand. All the early historians point out that

[2] The reader will find in Mr. T. A. Joyce's "Central American and West Indian Archæology" a valuable popular introduction to the subject here considered.

there was a marked difference between the historic inhabitants of Haiti-Porto Rico, or the Greater Antilles, and the Lesser Antilles. The former were called Arawak, the latter Carib. The two races were hostile to each other and their culture was similar but not identical. To the historians this was a fact of geographical distribution. They paid no attention to what had been the condition in prehistoric times, or whether the life of the earlier inhabitants from Trinidad to Cuba was ever more uniform than they found it. They recognized, however, that the Carib were a more or less nomadic, while the Arawak or Tainan were a stationary people. A study of prehistoric material here presented supports the belief that the earlier inhabitants of the Lesser Antilles were even more closely allied culturally to those of the Greater Antilles than were the later Carib to the Arawak. The Carib inhabitants of the Lesser Antilles, as we know from both archeology and legend, had submerged the former population as far north as Vieques Island and the east coast of Porto Rico. They were likewise known to all the Greater Antilles, even to the Bahamas, but had not yet overcome and replaced a preexisting Tainan or Arawak population.

In his memoir on "The Aborigines of Porto Rico"[3] the author has shown, as far as possible with limited material, the characteristics of the culture of that prehistoric Antillean life in Porto Rico. In the present article he will try to indicate, mainly from archeological material, the culture of the Lesser Antilles before the advent of the Carib. While it is probably true that many of the older customs and objects belonging to the prehistoric people of the Lesser Antilles survived among the Carib and were in use when these islands were first visited by Europeans, many were not. These objects of a past culture were obsolete and the most exhaustive examination of the literature fails to reveal their probable use. Notwithstanding this uncertainty, however, these objects of stone, clay, wood, or shell are often designated "Carib artifacts," as if made by this vigorous nomadic stock. Many of them are, however, mentioned as in use at this early time by Carib, and as there is a larger literature on Carib than on Arawak ethnology, dating to the fifteenth, sixteenth, and seventeenth centuries, much information may be gathered by historical methods or examination of documentary accounts of this race. In one or two instances this method is used in the following pages, but the archeological or objective method is the one generally employed.

[3] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., 1907.

PREHISTORIC CULTURAL AREAS IN THE WEST INDIES[4]

When the West Indies were discovered by Europeans the inhabitants of these islands were ignorant of the metals, iron and bronze, which have played such an important part in elevating the condition of prehistoric man in the Old World. Stone, clay, wood, bone, and shell were employed by the natives for utensils and implements; gold and copper for ceremonial purposes or for personal decoration. The pre-Columbian aborigines of the West Indies, like those of the rest of America, were practically in what Prof. Hoernes has aptly called the infancy of our race culture, to which the name Stone Age is commonly applied.

This period of race history seems to have been universal; it was nowhere of brief duration. Successive steps in cultural advancement were slow and in certain localities were retarded by unfavorable environmental conditions.

It has been estimated that the Stone Age in the Old World lasted from the year 100000 to 5000 B. C.[5] The American Indian was practically in the Stone Age when he was discovered at the close of the fifteenth century, and the inhabitants of a few of the Polynesian Islands were still living in this epoch a little over a century ago. There is every reason to suppose that the parentage of the American Indian dates as far back as that of the Europe-Asian man, provided both sprang from the same original source. It is known from evidences drawn from differences in implements that during the protracted Stone Age epoch man in Europe passed through distinct phases, which have been designated the earliest, the old, and the new stone epochs, before he entered that of metals. The American Indian had developed into the new or polished Stone Age when he came to America, and had not progressed beyond it when America was discovered by Columbus.

Although the Stone Age still survived in America when it was discovered, this epoch in the Old World had long before been superseded by one of metals, showing that the Age of Stone in the Old and New Worlds does not correspond in time. When the New World was discovered Europe had been in possession of metal implements for several thousand years. The highest development of stone tech-

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[4] Journal of the Washington Academy of Sciences, Vol. V, No. 12, June 19, 1915.

[5] Practically another way of saying that the length of the Stone Age far exceeded the age of metals.

nique, other things being equal, would naturally be looked for where it had been practiced the longest time, and it is to be expected that the prehistoric stone objects found in America would be superior to the European, known to have been made before the discovery of bronze and iron.

Individual specimens of stone implements from the Old and New Worlds are so similar in form and technique that it is very difficult to determine which continent can show the better examples, but comparing the majority of implements from the Stone Age in America with those made before the discovery of bronze and iron, now exhibited in Europe, it has been found that the former are, as a rule, superior to the latter. In Stone Age architecture we find a like superiority. The buildings constructed in the American Stone Age excel those of the same epoch in Europe, as will appear when we compare the stately temples of Peru, Yucatan, or Central America with the megalithic monuments and other buildings ascribed to the latest Stone Age of Europe.[6]

Character and decoration of pottery is also a fair indication of cultural conditions reached in the Stone Age in different regions of the globe. The ceramics of this epoch in America reached a higher development than those of the polished Stone Age of the Old World, as may be readily seen by comparisons of the beautiful prehistoric American Stone Age pottery with that of man before the use of metals in the Old World.[7]

It thus appears that, if we base cultural advancement on pottery or house building, America had reached a higher stage of development than Europe, even though man in the former was ignorant of the metals, bronze and iron. The implication is that the human race, found in America in 1500 A. D., had lived in a Stone Age longer than man in Europe, where metals had been introduced fully 6,000 years before Columbus.

The implements found in the West Indies are among the highest developed examples of this Stone Age. Many of them are the most perfect of their kind and rank with the polished stones of Polynesia, Africa, and Asia. In architecture the branch of the American race inhabiting the West Indies in prehistoric times had not made great progress, although the cognate ceramic art was well developed.

While there is little in prehistoric America to show a serial succession of stone implements based on method of manufacture, as indi-

[6] This judgment is based on the probable form and character of the ancient houses of the Stone Age in Europe, from "house urns" or burial urns shaped like houses, or from the reconstructions made of walls as indicated by post holes and floors. These buildings of the European Stone Age were certainly inferior to those of the same epoch in America.

[7] These examples show the weakness of relying solely on stone, bronze, and iron in classification, and the futility of basing the degree of human culture on any one form of artifacts.

cated by chipping, polishing, or other superficial characters, the variations in their forms are great. They indicate geographical rather than historical cultural distribution. Certain characteristic forms of stone artifacts are confined to certain areas, but these characteristics are not of such a kind as to make it difficult for us to readily arrange them in sequence. The first step to take in explanation of different types of stone implements is naturally to define the areas that are typical.[8]

While the different known types of stone objects found in the West Indies may be considered geographically rather than historically, this manner of assembling specimens in large collections brings out many facts which will make it possible later to determine a definite chronology, and to associate types of implements with local conditions, thus affording an instructive study of the interrelations of environment and human culture.

We can believe that certain of the stone implements found on these islands are old, but it can not be proved that the oldest of them extend back to the earliest polished stone epoch. Stone implements made by chipping, or those having unpolished surfaces, are rare in the West Indies; they have not been reported in sufficient numbers to enable us to say that they indicate the former existence in these islands of an epoch when chipped implements were the only ones employed. A few chipped axes have been reported from Santo Domingo and other islands, but neither there nor in other islands are the flint chips numerous enough to afford conclusive proof of an epoch, notwithstanding these implements and their chips closely resemble similar objects picked up on the sites of workshops in the Old World.

The discoverers of the West Indies early recognized that the aborigines of different islands differed in their mode of life, their culture, and their language. In early accounts we find two groups designated as Arawak and Carib, accordingly as their life was agricultural or nomadic. It was stated by the early travelers that these groups inhabited different islands, the former being assigned to the Greater Antilles, the latter to the Lesser.

The large collection of artifacts characteristic of the aborigines of the West Indies now available shows that the stone tools, pottery, and other objects found on the islands inhabited by the Carib are radically different from those from islands on which the so-called Arawak lived. Students of prehistory did not at first connect this difference with any racial dissimilarity, but ascribed all these imple-

[8] The culture historian is concerned with the distribution of archeological objects in time and space or in history and geography. It is for the geographer to interpret geography in relation to history and for the historian to translate history by the interpretation of the geographer.

ments to the Carib. This conclusion does not necessarily follow, for it fails to take into account the significant fact that the stone objects found on the so-called Carib Islands may have been made by a people inhabiting them before the Carib came. Moreover, this interpretation does not give sufficient weight to the evidence furnished by the implements themselves, for they imply a culture quite different from that of the Carib as made known by historical accounts, as flourishing at an earlier date on the Carib Islands. In other words, there is good evidence of a prehistoric race other than Carib but related to it inhabiting the Lesser Antilles before the arrival of the Europeans. This culture is here called the Ierian as that of Porto Rico is known as the Tainan.

One characteristic of the prehistoric objects found on the islands inhabited by Carib when discovered may be mentioned in this connection. It is well known that the Arawak, like all agricultural peoples, are great potters, and that the ancient Carib, like nomads, from necessity were not. The two races probably preserved these characteristics in the West Indies; and the fact that we find pottery objects of high excellence on all the islands inhabited by the Carib leads to the natural inference that they were made by a people allied to the Arawak who anciently lived on these same islands or Ierian women and their descendants married to Caribs.

Archeological remains left by the aborigines of the West Indies reveal three cultural epochs, grading into each other, which may indicate a sequence in time or distinct cultural stages. These epochs were those of the cave dwellers, the agriculturists,[8a] and the Carib. The most primitive culture is represented by objects found in the floors of caves or in the numerous shell heaps scattered from Cuba to Trinidad. A second stage is more advanced and is agricultural in nature, represented on all the islands, but surviving at the time of discovery on the larger—Cuba, Haiti, and Porto Rico; while the third, or Carib, stage had replaced the agricultural in certain of the Lesser Antilles, especially on the chain of volcanic islands extending from Guadeloupe to Grenada.

Although the three stages above mentioned are supposed to follow each other chronologically, not one of them had completely died out when Columbus discovered America. The cave dwellers still survived in western Cuba and in Haiti, and according to some authorities they spoke a characteristic language. The Arawak inhabited Porto Rico, Haiti, Cuba, Jamaica, and the Bahamas.

The customs of the aborigines who left the great shell heaps found throughout the West Indies were apparently different from those of the natives of prehistoric Florida but like those of northern South

[8a] Some of the finest specimens of pottery evidently belonging to the agricultural epoch occur in shell heaps and caves.

America. These people, essentially fishermen, lived on fishes, mollusks, or crabs, eking out their dietary with turtles, birds, and other game captured along the shores; fruits and roots were also probably collected and eaten, but their main food came from cultivated crops of yuca planted in the neighborhood of their settlements. The nature of their food supply confined them to the seashore or to banks of rivers, where village sites occur in numbers. It is probable that the shell-heap people of the West Indies were likewise cave dwellers and resorted at times to rock shelters for shelter or protection. We know from excavations in caverns that they buried their dead in these caves, which later came to have a religious or ceremonial significance.

We may suppose that a life devoted to fishing would make men good sailors, and it is probable that the prehistoric Antilleans manufactured seaworthy canoes, hollowing out logs of wood with the live ember and the stone ax. It is also evident from objects found in the floors of caves that the women of this epoch manufactured pottery, and as reptilean figures in relief or effigy vases representing this animal occur constantly, we may suppose that some reptile, as the iguana or turtle, was highly prized for food. Some of the bone needles, whistles, and ornaments of shell or wood found in shell heaps show that those who camped in the neighborhood were advanced in culture, while other objects found in the West Indian shell heaps are, so far as technique goes, equal to those of the highest of the Stone Age culture. It is probable that this form of culture reaches back to a very early date in culture development.

One important consideration presents itself in relation to the shell-heap life in the West Indies as compared with that of the shell heaps in Florida and Guiana in South America. The very existence of the shell-heap culture on the continents and connecting islands would seem to shed light on the earliest migrations of West Indian aborigines. Unfortunately, however, the objects manufactured by all primitive people in this stage are so crude that they are not distinctive; there is often a parallelism in their work. For example, pottery from widely separated regions often bears identical symbols, even where the people who manufactured it have had no cultural connection. Consequently, although we find certain common features in decorated coastal pottery of Florida and that of Porto Rico, this similarity implies rather than proves cultural contact.

The highest prehistoric culture attained in the West Indies was an agricultural one. It was based on the cultivation of the yuca (*Manihot manihot*), a poisonous root out of which was prepared a meal, from which the so-called cassava bread was made. At the time of the discovery the cultivation of this plant had attained

such complete development that Porto Rico and Haiti are said to have been practically covered with farms of this plant. In fact, when sorely pressed by the Spaniards to furnish them gold for tribute, one of the caciques offered to cultivate for the conquerors a yuca farm extending across the island of Haiti. Both Porto Rico and Haiti appear to have been densely populated, and the failure of the population to advance into a higher stage of development was due to the perishable character of the root or food plant cultivated. Corn and other cereals[9] were not extensively used and there was no domesticated animal. It is evident that this culture was built on a root food supply which was clearly a product of environment, and on account of this dependence merits careful study by the culture historian and anthropo-geographer.

The development of this culture varies on different islands or groups of islands, forming cultural centers of which the following can be recognized by the character of the pottery: (1) Porto Rico, (2) Jamaica, (3) eastern Cuba and Bahamas, (4) St. Kitts, (5) St. Vincent, (6) Barbados, (7) Trinidad. The differences in artifacts characteristic of these culture centers of the Antilles are sometimes small; thus, the Porto Rico area, which includes also Haiti, Santo Domingo, Mona, and some smaller islands, is clearly allied to the eastern Cuba and Bahama area. In the former we have the three types of stone implements—stone collars, elbow stones, and three-pointed idols—none of which has yet been described from Cuba, the Bahamas, or Jamaica. Pottery from these islands bears rectilinear or curved lines ending in enlargements,[10] a decorative feature which is absent in Jamaica. This feature does not occur in the Lesser Antilles from St. Thomas to Trinidad, where four different regions of decorated pottery can be differentiated.

A search for a stone technique equal to that of the Greater Antilles on the North or South American contiguous areas is not rewarded with much success. The stone collars, elbow stones and triangular stones of these islands are of superior workmanship and find their parallel on the gulf coast of Central America and Mexico, especially among the Totonac and Huaxtec. Here, also, we find enigmatic stone objects, like stone yokes and stone rings, as finely made as the Antillean collars and elbow stones. Their relationship has been suggested by several students, but their connection has not been made out with any satisfaction nor has it been demon-

[9] Corn (*Zea mays*) was introduced into the West Indies as a food plant shortly before the advent of the Spaniards. If sufficient time had elapsed its cultivation would have changed the form of cultural development based on root agriculture, unless as in the Lesser Antilles it had been destroyed by Carib who were pressing in upon it with such force that it could not survive.

[10] This characteristic feature of Porto Rican pottery decoration appears on pottery found by Mr. Clarence Moore in mounds of northern Florida.

strated which objects are the most ancient; whether the West Indian was derived from the continental, or vice versa, or whether both independently originated is one of the unsolved problems of American archeology.

The West Indies are geologically divided into two great divisions, known as the Greater and Lesser Antilles. The separation of the two is a channel, or possibly the Anegada Passage, between Porto Rico and the Virgin Islands.[11] The former division includes Cuba, Jamaica, Santo Domingo, Haiti, and Porto Rico; the latter, a chain of smaller islands extending from the Virgin Islands to the northern coast of South America.

The antiquities of these divisions differ in many characters; for instance, the majority of the edged-stone celts from the Greater Antilles have a petaloid or almond-shaped form, being sharp at one end, pointed at the other, finely polished and destitute of a groove for the attachment of a handle. Ninety per cent of all celts found in Jamaica, according to Prof. Duerden, and, it may be added, a still larger percentage of those from Porto Rico, Cuba, and Haiti, have this petaloid form. Across the Anegada Passage, in the Lesser Antilles, this proportion no longer holds true; the relative number of petaloid forms diminishes at a leap, and true axes take their numerical predominance. In the volcanic islands very few petaloids occur. Here the points of the almond-shaped celt are replaced by wings or extensions—a form rarely found in the Greater Antilles, but constituting about 90 per cent of all the stone implements in these islands. This radical change stamps the petaloid, although it is represented in all the Antilles, as a northern type characteristic of the Greater Antilles, while the eared ax may be regarded as more strictly southern in its distribution. Shell celts are universal, but their relative proportion is small in all of the islands except Barbados, where they constitute 99 per cent of the total number of celts. A comparison of pottery and other archeological objects shows a similar separation of the islands into the two divisions corresponding with those above mentioned.

The West Indian geographical areas are considered in the following order:

1. Trinidad.
2. Barbados.
3. St. Vincent-Grenada.
4. Dominica.
5. Martinique.
6. Guadeloupe.

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[11] The Bahamas constitute a special group, the culture of the aborigines resembling that of Porto Rico in many particulars.

7. St. Kitts.
8. St. Croix.
9. Haiti-Porto Rico.
10. Cuba.
11. Jamaica.
12. Bahamas.

The differences in prehistoric culture in these areas are mainly shown in their ceramics, but these variations do not always occur. They are mainly due to local causes, as geographical situation and possibly acculturation of foreign elements. The pottery of Trinidad should be ranked very high, both in technique and decoration, being closely related to that of the shell heaps of adjacent South America. It may, however, not be far from truth to say that as a rule there is a general similarity in pottery of prehistoric date from Trinidad to Cuba. Some regions of individual islands, as western Cuba, appear to be wholly destitute of ceramic remains, and possibly this is due to the persistence of tribes ignorant of this art in these localities.

The boundaries of the areas above mentioned overlap and converge into each other to such an extent that there is some difficulty in determining the limits of any one area, and it is impossible sometimes to discover to what area some of the smaller islands should be referred. A determination of culture characters of some of the islands is impossible without larger collections and renewed investigations.[12]

The urgency of a call for archeological field work in the Antilles was long ago expressed by M. Guesde in a "personal history" quoted by Prof. Mason, as follows: "In the presence of this collection [Guesde] one is led to ask if these wrought stones are the work of the Yguiris or of the Caribs, or if they would not belong to these two races. We are in almost complete darkness on this point."[13]

In the many archeological collections from the Lesser Antilles, embracing thousands of specimens examined, the author has not found a single example of the characteristic three-pointed stones,[14] not a single stone collar, elbow stone, or stone seat, which can be referred without question to these islands. The fragment of a stone collar seen in the Norby collection at Santa Cruz, Danish West Indies, belongs to the Porto Rican area. Two stone collars, one of which is in the British Museum and the other in the Guesde collec-

[12] At least two distinct cultures, probably more, existed in Santo Domingo-Haiti when discovered. The western end of this island, like western Cuba, was inhabited by cave dwellers; the eastern by agriculturists.

[13] Mason, Guesde Collection of Antiquities, p. 734.

[14] Specimens of a fourth type of these pointed stones in the Heye collection were obtained from the Grenadines, but these are somewhat different from the type of three-pointed stones and may not belong to this group.

tion, probably also came from the Porto Rican area, although ascribed to Guadeloupe.

The general character of Jamaican antiquities seems to indicate that the culture in that island was different from that of Haiti and Porto Rico, and the stone implements thus far known from there are certainly more closely allied to those from eastern Cuba. Stone collars, elbow stones, and three-pointed stones do not appear to have been indigenous in Jamaica or Cuba. Their absence is sufficient to separate Jamaica and western Cuba, culturally, from Porto Rico.[15]

It has been difficult to clearly differentiate minor archeological culture areas of the Greater and Lesser Antilles, since sporadic specimens are found in one that do not occur in others, and the difficulties are increased by the fact that in many collections the provenience of specimens is often wrongly labeled. It is also to be pointed out that there is no material from several of the islands, making our classification of prehistoric objects and references to areas provisional. These areas can, therefore, only be accepted in a general way.

Since three-pointed stones and collar stones are limited in their distribution to Porto Rico and Santo Domingo it may be taken for granted that this type originated there or that they are autochthonous on these islands. By the same course of reasoning the fishtail and winged implements, limited especially to the volcanic areas, as St. Vincent, Grenada, and Guadeloupe, probably originated where they are found buried in great numbers.[16]

The study of Antillean linguistics ought to greatly aid the archeologist in the study of West Indian culture areas. Words and phrases, like objects, are archeological evidences handed down from a remote past.

Some light on the existence of the prehistoric culture areas above suggested may be shed by a study of words for animals or plants still current on different West Indian islands. It is instructive to

[15] The more general use of caves for burials and for habitations, and the great number of middens, would indicate an earlier phase of Antillean culture surviving longer in Jamaica than in the other Greater Antilles except Cuba.

[16] Father Labat (Nouveau Voyage aux Isles de l'Amérique, vol. 1, pp. 142–143) describes a custom among the Dominican Caribs of burying in a cache such valuables as they wished to conceal. These have been found in caches in St. Vincent, in cutting roads through the country, and may be explained in this way: "When the inhabitants fear pillage this is how they hide what they want to save. For such as will resist humidity, such as objects of iron, plates and dishes, kitchen utensils, barrels of wine and brandy, they make a hole on the seashore 8 or 10 feet deep so that the soldiers sounding with their swords can touch nothing harder than sand. After the cache is filled up and covered with the same sand the balance is thrown overboard so that no elevation of the sand may be noticed. Water is also thrown on it to solidify it, and care is taken to align it with two or three neighboring trees or big stones, in order to enable the cache to be subsequently located more easily by lining up the same marks.

"When objects can not be carried to the seashore, holes are made in dry ground or among the canes; if it is in a savanna the (top) ground must be carefully lifted as when one lifts sod, after which cloths are put around the place where the hole is to be dug

note that Carib place names are rare in St. Kitts and Santa Cruz, which is in marked contrast to other islands, as Porto Rico, St. Vincent, and Dominica, which still bear Indian names. Islands colonized by white settlers of English extraction rarely preserve Indian names, while in those settled by French and Spanish many survive. Thus in Barbados, settled by English, there are few Indian place names, while in Jamaica, which was obtained by conquest and was Spanish for 162 years before the English subdued it, several Indian names survive. As, however, the present paper does not venture into the great field of Antillean linguistics this subject must be passed over with a brief mention.

In the following pages the author considers the different archeological culture areas in sequence, from Trinidad northward, the characteristic antiquities of each island being considered geographically.

TRINIDAD

The island of Trinidad may be regarded as the gateway to the migration of Arawak and Carib races from South America to the chain of islands connecting the continent with Porto Rico and the other Greater Antilles. This island was the home of several tribes of Indians when discovered by Columbus and constant references to them are found in all the early writings.

The following account of excavations at Erin, Trinidad, is quoted at length from "Prehistoric Objects from a Shell-heap at Erin Bay, Trinidad":[17]

The shell heap at Point Mayaro to which the author has here called attention, and which he wished later to study, has been excavated since he left the island and has yielded many specimens, some of

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that the soil may not show on the neighboring plants. The top of the hole must be as small as possible and enlarged as it deepens. When the cached objects have been put in it is filled with earth and tightly packed down; water is thrown on it; the sod is also wet which has been lifted, carefully replaced, and the rest of the soil is carried away. The ground around is dampened in order to freshen the ground which has been parched. When clothes, laces, silks, papers, and other things which may be impaired by dampness are to be cached they are put in big coyemboucs, which are great calabashes from trees cut off the fourth or fifth part of their length; this opening is covered by means of another gourd (calebasse), and these two pieces are held together by a thread of mahot or agave, somewhat as the bottom of a senser is attached to its top. These two pieces so attached are called "coyembouc." This word, as the invention, is of savage origin. When the coyembouc is filled with what is desired should be put in it, the cover is attached with a cord and it is tied among the branches of chestnut trees or trees with larger leaves, which are commonly surrounded with vines, some of which are put in the coyembouc, which hide it so well that it is impossible to see it, and the leaves which cover it prevent the rain falling in it or to cause the least humidity. Thus the inhabitants cache their most valuable articles; but their booty, jewelry, and money they must hide themselves without witnesses, for if their negroes know they will not hesitate to force him to tell where it is, or the slave may rob the cache while the master is fighting.

[17] Amer. Anthrop., n. s. vol. xvi, no. 2, pp. 200–220.

which have been described and figured by Mr. De Booy in his article, "Certain Archeological Investigations in Trinidad, British West Indies."[18] The collection made by De Booy at Mayaro and elsewhere contains many more specimens than that from Erin, but they do not greatly differ from those here illustrated. They indicate a people in about the same cultural condition, allied to Tainan rather than Carib stocks.

Trinidad is well adapted for the home of an aboriginal people. It has constant fresh water, an abundant supply of food, its mountains and plains being well stocked with animals, the sea affording an abundance of fish, mollusks, and crabs, and its soil yielding a large variety of edible roots and fruits. The island lies in full view of the coast of South America and was visible to the natives inhabiting the Orinoco delta. On its lee side the water is shallow, but landing can be made at many places in small craft. There are high hills in the interior, level savannas along the coasts as well as inland, and streams of fresh water that open into brackish lagoons.

Early historical references to the Indians inhabiting Trinidad date from the discovery of the island by the great Genoese. As Columbus on his third voyage, in 1498, sailed with his companions along the shore of the newly discovered island which he had named after the Holy Trinity, writes Peter Martyr,[18a] "from their ships the Spaniards could see that the country was inhabited and well cultivated; for they saw well-ordered gardens and shady orchards, while the sweet odours, exhaled by plants and trees bathed in the morning dew, reached their nostrils." Following the shore somewhat farther, Columbus "found a port sufficiently large to shelter his ships, though no river flowed into it. * * * There was no sign of any habitation in the neighbourhood of this harbour, but there were many tracks of animals similar to goats, and in fact the body of one of those animals * * * was found. On the morrow, a canoe was seen in the distance carrying eighty men, all of whom were young, good looking, and of lofty stature. Besides their bows and arrows, they were armed with shields, which is not the custom among the other islanders.[19] They wore their hair long, parted in the middle and plastered down quite in the Spanish fashion. Save for their loin-cloths of various coloured cottons, they were entirely naked." Columbus naively declared that he followed in this voyage the parallel of Ethiopia, but recognized that the people he found in Trinidad were not Ethiopians, for the "Ethiopians are black and have curly, woolly hair, while these na-

[18] Amer. Anthrop., n. s., vol. xix, no. 4, pp. 471–486. Republished in Cont. Mus. Amer. Ind., vol. iv, no. 2.

[18a] De Orbe Novo, vol. i, pp. 132–133.

[19] The Orinoco Indians had elaborate shields.

tives are on the contrary white [lighter in color?] and have long, straight, blond hair." [20]

According to Las Casas, who is said to have possessed accounts of the third voyage of the great admiral which are now lost, the sailors of Columbus saw human footprints on the shore of Trinidad and discovered implements showing that the aborigines were fishermen. As Columbus skirted this coast he observed houses and cultivated fields "bien probada a labrada," indicating that agriculture as well as fishing was practiced by the natives. In the meager reference to the people given by Las Casas he says incidentally that "they were lighter and better proportioned than those of the other Antilles, and wore their hair long, like the women of Castile. They wore variegated cloth headbands, and girdles on the loins. The men were armed with bows and arrows, and, unlike the inhabitants of the other Antilles, had [war] shields."[21] The identity of these people is not clear from this early account, but somewhat later they were referred to as Arawak.

Sir Robert Duddeley in 1595 made a journey through Trinidad and lodged in "Indian towns," finding the natives a fine-shaped and gentle [22] (sic) people, naked and painted red.

Later, Sir Walter Raleigh enumerated the following "nations" or races in Trinidad: Yaios, Amecos (Arawak), Salvagay (Salivas), Nepoios, and Carinepagotos. At the end of the seventeenth century there were said to have been 15 Indian towns in Trinidad, but the 2,032 aborigines recorded as inhabiting the island in 1783 had dwindled to 1,082 ten years later.[23]

In some of the early historical references to Trinidad all the natives are classed as Arawak.[24] Thus Davies [25] writes: "It was when the captain was engaged for the war against the Arawages who inhabit Trinity [Trinidad] Island, and to that purpose he made extraordinary preparations." In other references to the Trinidad aborigines which might be quoted the name of Carib does not occur,

[20] It is not improbable that in ancient times there was frequent communication between the inhabitants of the mainland of South America and Trinidad—a communication that was kept up until quite recently, for it was only a few years ago that canoe loads of Indians were accustomed to land at Erin Bay, at rare intervals, and make their way by an old Indian trail to the present city of San Fernando, via Siparia, through the original forests. These visits are now made primarily for trade and are probably a survival of a custom quite common in prehistoric times. Well-marked "Indian trails" can still be followed through the forest depths.

[21] The Warrau, who lived on the mainland, have a large square shield called ha-ha, used in athletic sports. (See E. F. im Thurn, Among the Indians of Guiana, London, 1883, p. 327.)

[22] This is not characteristic of the Carib, according to ideas current then or in later times. It may be noticed, en passant, that there is no mention of Carib in the early accounts of the Indians in Trinidad seen by Columbus.

[23] On Bryan Edwards's map of the West Indies an "Indian town" appears on the east coast of Trinidad.

[24] The historical evidences all agree that the people of this island were an agricultural race allied in culture to Arawak.

[25] History of the Carribby-Islands, 1666.

and indeed there is no good evidence that there were Caribs on the island, notwithstanding several of the above-mentioned tribes are supposed by some authors to be divisions of "Carib."

The nearest approach to pure-blood aborigines of Trinidad live at Arima, in the middle of the island; but aboriginal features can still be found elsewhere among the inhabitants, although the author was unable to learn of a person who could speak any aboriginal language once spoken on the island, or that there were any Indians of pure blood remaining. There survive in Trinidad numerous Indian place names, as Arima and Naparima; but while some of these suggest names existing in Porto Rico and St. Vincent, they are as a rule dissimilar, indicating different languages. The prehistoric inhabitants of Trinidad were probably linguistically distinct from those of the other islands.

Additional knowledge of the culture of the aborigines of Trinidad can be acquired either by archeological research or through survivals in folklore, which are very common.

Erin Bay

The small settlement at Erin Bay consists of a few shops, two churches, and a number of dwellings along a well-built road that passes through the town to a warehouse on the shore. Small steamers anchor at intervals a few miles from the coast, but the best way to reach the settlement is by steamer from San Fernando to Cap de Ville and by carriage from the landing. It can also be visited from San Fernando by road, via Siparia. The only accommodations for remaining overnight at Erin are at the Government House.

The present population consists almost wholly of blacks and East Indian coolies indentured to English planters or overseers, who own or manage the larger estates. The vernacular is a French patois of peculiar construction and incomprehensible to any but the inhabitants. The plantations are large and considerably scattered; they produce profitable crops, mainly cocoa and tropical fruits that are shipped to Port of Spain for export.

Not far from Erin there are remnants of the primeval forests in which game, monkeys, and tropical vegetation abound. The land is rich and productive, and the estates are prosperous. There are a few small kitchen middens on the coast, not far from Erin, some of which will well repay excavation; but their isolation is a practical difficulty unless complete and systematic work be done.[26]

[26] Trinidad has never been regarded as a remunerative field for archeological investigation. The first results of the author's efforts in the island were not very promising, but after some discouragement, excavations of a shell heap at Erin Bay, in the Cedros district, yielded important data bearing on the former culture of the aborigines in this part of the island.

There are several shell mounds on the eastern coast of Trinidad which show fragments of pottery and other rejecta, and several heaps on the southern shore that are superficially composed of shells. In the so-called shell heaps at San Jose the shells are few and inconspicuous, but in a midden at Point Mayaro, which covers a fairly large area, many characteristic potsherds may still be found on the surface. As a rule these shell heaps are not far from the shore, but in several instances they lie inland.[27]

Fragments of pottery from this region sent to the author by Mr. Dearle, of Port of Spain, differ from those of Erin Bay, but apparently were made by people in the same stage of culture. There is a small collection from this region in the Heye Museum, obtained after this report was completed, which contains a number of highly instructive heads and other fragments. This pottery is colored white and purple-red, whereas that from the shell heap at Erin Bay has a bright red superficial slip, although the color is often worn, showing gray beneath.

Chip-Chip Shell Heap

The largest shell heap in Trinidad, locally known as Chip-chip hill, situated at Erin, a short distance from the shore, covers several acres and forms a considerable elevation. Upon this mound are constructed the government buildings, the police station, and the warden's office. The author obtained from the assistant warden, Mr. John Menzies,[28] permission to make excavations in that part of the shell heap situated on Crown land, but was obliged to suspend work on the private land adjoining, as it could not be thoroughly explored without injury to the property. The specimens, although limited in quantity, are the most numerous known, and give a fair idea of the nature of the contents of a typical Trinidad shell heap.

Chip-chip hill was first described by Mr. Collens, whose excavations therein were rewarded with several fine specimens, now on exhibition in the Victoria Institute at Port of Spain. These objects are figured by Collens in his Handbook of Trinidad,[28a] and are also illustrated by the present author in his Aborigines of Porto Rico.[29]

Some limited excavations were also made at Chip-chip hill by Rev. Thomas Huckerby, of San Fernando, several years after Collens finished his work, but only a few fragments of pottery, now in the Heye Museum, were obtained.

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[27] Efforts to find evidences that man inhabited the numerous caves in Trinidad, or used them for burial purposes, have not been rewarded with success, although many caves, especially those near Pedro Martin's basin, were examined.

[28] The author is very grateful to Mr. Menzies for his aid, and takes this opportunity to thank him for his many kindnesses while at Erin Bay. He is likewise indebted to Mr. Dearle, of Port of Spain, for voluntary aid in the excavations.

[28a] Collens, J. H. Guide to Trinidad. London, 1888.

[29] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxxxv.

The extent of the Chip-chip mound could not be determined, as it extends far into the cocoa plantation under a dense tropical growth. Its surface, except where cleared by the Government for the erection of buildings, was covered with vegetation. Some distance from the hill, where a ceiba tree had fallen, the roots showed a considerable deposit of shells, indicating that the extent of the heap was great and furnishing a clew for continued excavations.

The shells in the mound at Erin are in layers alternating with vegetable mold, ashes, and soil, forming a sticky mass[30] that clings tenaciously to the specimens and almost conceals their identity. The terra-cotta heads, when dug out of the earth, were completely coated with mud, which had to be removed by washing, and by so doing some of the red pigment which covered them disappeared. As the ceramic objects had been painted after they were fired, the color is not permanent, and the length of time they had been in the ground caused it to come off even more readily.

As mentioned, a vertical section of the mound exposed alternating layers of shells and ashes, mingled in some cases with humus and with frequent fragments of charred wood. Sometimes the strata were composed entirely of shells, but their thickness was not uniform, especially at the periphery of the mound. Over the entire surface of the mound there was a dense growth of tropical vegetation, with clearings at intervals for cocoa and plantains. The fallen trunks of palms, live shrubs, and trees formed an almost impenetrable jungle, extending into the neighboring forests where the ground had not been cleared. On the sea side the mound is only a short distance from the shore and is separated from the bay by a lagoon inclosed by a narrow strip of land. Near by is a spring, from which the shipmates of Columbus obtained drinking water in 1498.

In their general character the objects found in the Chip-chip mound are not unlike those occurring in other West Indian middens, although they differ in special features. As is usually the case, the majority of the specimens are fragments of pottery, which are among the most instructive objects by which culture areas can be defined. These will be considered first.

Pottery

Comparatively little has been published on the pottery of the Lesser Antilles, although specimens of whole jars and innumerable fragments are found in various museums and private collections. The Heye Musuem is the richest in the world in these objects. The potter's art was practiced by aboriginal people from Trinidad to

[30] During the author's work in Trinidad it rained almost every day.

Cuba and the Bahamas, but while there is general similarity in the product, there are very marked specific differences.

The several beautiful specimens of pottery in the Victoria Institute at Port of Spain, Trinidad, two of which, through the kindness of the officers of that institution, were photographed, have been reproduced by the author,[31] who has quoted the description in the appendix in Collens's Guide to Trinidad, here reprinted, as it contains practically all that has been published on the archeology of Trinidad:

"The discovery of some interesting Indian relics at Erin during the past month (May, 1888) is, although I had brought my work to an end, of sufficient importance to demand a brief notice. On the occasion of a recent visit of his Excellency Sir W. Robinson and suite to the southern quarter of the island, the Hon. H. Fowler, who was one of the party, observed a mound of shells. Dismounting, a closer inspection revealed some pieces of rude pottery, and subsequent excavations by Mr. A. Newsam, the Warden, led to the unearthing of some capital specimens, indicating beyond a doubt this had been the centre, at some period more or less remote, of an Indian settlement. The pottery is of two kinds, glazed [32] and unglazed, the latter dating back to a time anterior to the discovery of the New World, for the art of glazing was unknown to the early Indians, nor is it likely that they became acquainted with it till after the Spanish occupation."

The following specimens are figured by Collens:

"Figure 1. A hollow stone, smooth in the concave part, forming a rude mortar. The Indians used a hard, smooth pebble for pounding their seeds and grains.

"Figures 2, 3, 4. Heads of animals in burnt clay, more or less grotesquely shaped. The eyes and mouth are exaggerated, a few, broad, bold lines serving to bring out the most striking features. In figure 4 the head of the monkey is fantastically crowned. All these were probably deities or ornamental attachments to earthen vessels.

"Figure 5. A well-shaped squirrel. Perhaps a toy whistle.

"Figure 6. An earthen bowl in fine preservation, about the size of an ordinary vegetable dish. With the lid, which is unfortunately missing, there would doubtless be a good representation of a turtle; as it is, the head and tail are clearly, and the limbs somewhat clumsily, shown."

The best entire vessel found by the author in his excavations at the Erin Bay midden is the shapely brown vase shown in plate 2, *A*. This receptacle was buried 2½ feet beneath the surface, in a thick layer composed wholly of shells. Its association and situation show no indication that it was deposited with care, and it could not have

[31] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxxxv.

[32] The author regrets that he can not support Mr. Collens's statement that glazed pottery occurs in the Chip-chip mound.

been a mortuary vessel, as no bones were found near by; it appeared rather to have been abandoned or dropped by its owner where it was found. The shape of this vase is an uncommon one in prehistoric West Indian pottery. In form it is enlarged equatorially, and tapers above to a rim, which, as is rarely the case in West Indian earthenware, is without handles or lugs, and below, in which region the exterior is slightly convex, to the base. Decoration in the form of incised lines appears on the surface of the upper area, but the under portion is smooth and without ornamentation. This decoration consists mainly of parallel grooves alternating with crescents, and circles with central dots. The walls of the vessel are thinner than is usual in West Indian pottery, and the surface is little worn. A noticeable feature of this receptacle is the base, which consists of a circular stand, thus rendering stability to the vessel. Similar bases of other specimens, being much more substantial than the bodies, are frequently preserved entire while the remainder has disappeared. This form of base is of common occurrence also in fragments from St. Vincent and Grenada, but is rare in Porto Rico.

Several bowls had been so long in the moist soil of which the Chip-chip mound is composed that they crumbled into fragments when an effort was made to lift them from their matrix. Although the forms of these bowls vary somewhat, several resemble that shown in plate 2, *B*, which may have been used for condiments or for pigment.[33] The walls of this vessel are thick, with smooth undecorated surface; its bottom is flat. The rim shows two opposite imperfections that may indicate the position of heads which served as handles.[34]

A remarkably well modeled reptilian head is shown in plate 2, *C*. Its great elongation distinguishes it from the head shown in plate 2, *D*, which is almost spherical and has the organs represented by incised lines rather than in relief. The same general tendency to rounded forms is exhibited in plate 2, *E*, *F*, *G*, but in these the nose is notably exaggerated.

The head, and especially the position and form of the nose, of the handle shown in plate 2, *I*, remind one of pottery from the Grenada region, a specimen of which is figured in the author's report on the Aborigines of Porto Rico.[35] In this instance the nose and mouth are indicated by hemispherical protuberances; the nostrils are represented by parallel slits, the eyes by pits in the middle of a circular disk, and the lips by a transverse furrow in a circular boss. A somewhat similar method of indicating the eyes is shown in plate 2, *H*.

[33] Many fragments of red and green pigment were found in the mound. The majority of the vessels here described are of gray or bright red ware.

[34] After pottery objects were taken from the mound they hardened considerably, but the handles of this vessel may have been broken from the rim previous to its recovery.

[35] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxxxiv.

Plate 3, *A*, represents a small rude pottery rest, of spool shape, with flat base, very thick walls, smooth undecorated surface, and somewhat flaring rim. Its size suggests that it was once used as a toy or as a ceremonial vessel, but it was more likely designed as a support for a bowl. Some beautiful pottery rests from St. Vincent are in the Heye collection, several of which, in a fragmentary condition, were obtained by the author at Balliceaux. The most elaborate of these measures about 6 inches in height, is perforated on the sides, and has a face in high relief.

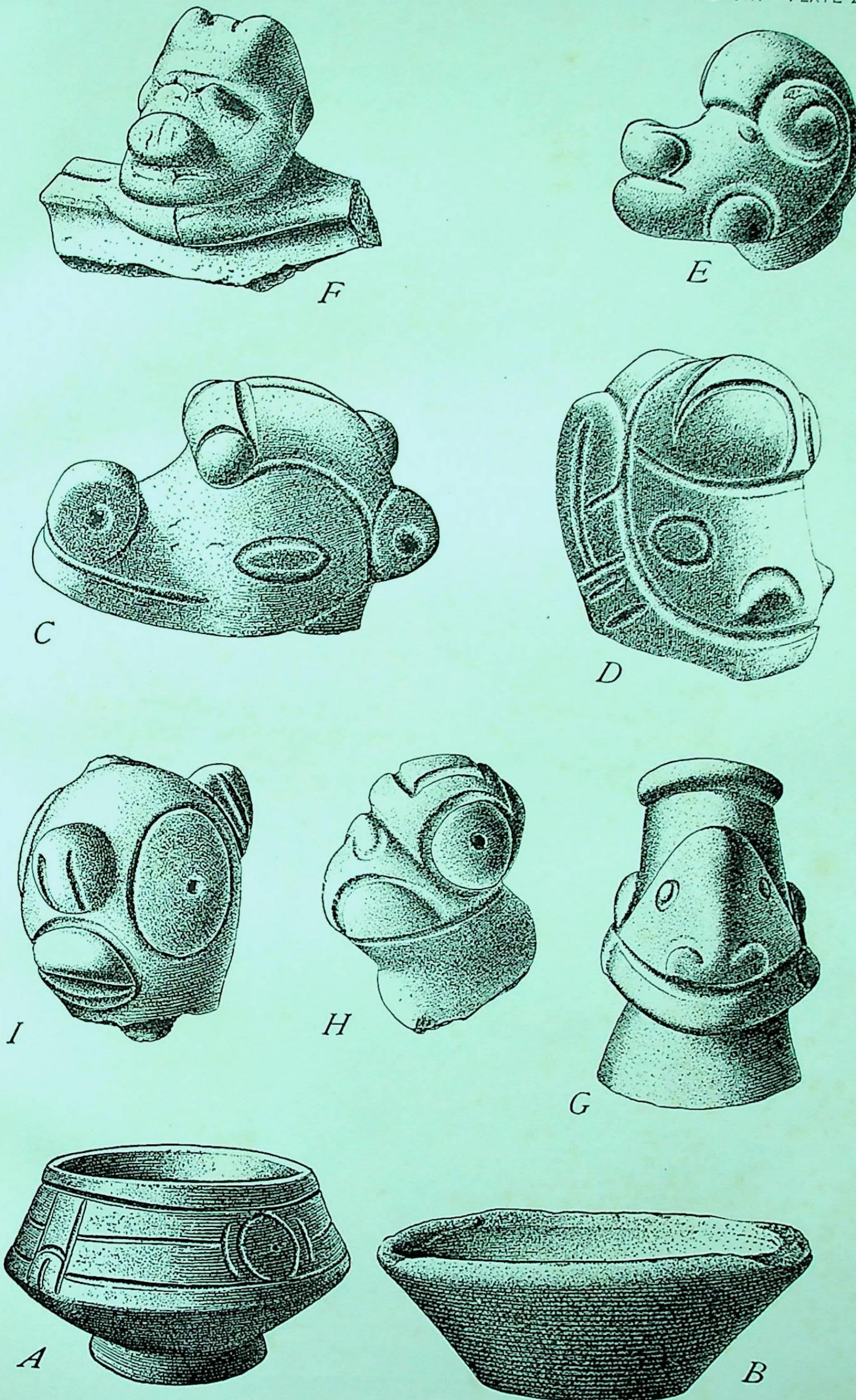
The rectangular clay box shown in plate 3, *B*, has thick walls, a flat bottom, and squatty legs continuous with the sides. Its longer sides bear incised S figures surrounded on three sides by a straight furrow. The narrow sides of the vessel are ornamented with incised crescents, also partly framed with straight lines. From the broken places at the two opposite shorter sides of the rim it would seem that the vessel had been provided with handles, probably in the form of heads, but it is also possible that a head may have been attached to one side and a tail opposite, thus producing an effigy vessel. Rectangular receptacles of this kind are rare in collections of West Indian pottery—a fact which imparts special interest to this example.

The object shown in plate 3, *C*, is a fragment of a bowl, shaped like a turtle, with head and tail, and the left legs drawn up to the side of the body. This interesting specimen is almost identical with the unbroken turtle effigy vase figured by Collens, to which reference has already been made. Although nearly half of this specimen is absent, enough remains to enable a determination of its form and of the general character of the relief decoration, which was no doubt identical on the two sides.[36] The head, which is not attached directly to the rim of the vessel but to the upper side, is rather long, with blunt snout, and mouth extending backward; the nostrils are indicated by pits, the eyes by slits. The tail consists of two buttons separated by grooves, and the fore and hind legs, with no indication of flippers, are modeled close to the body. Like many Antillean earthenware vessels, the walls are thick and the rim not decorated.

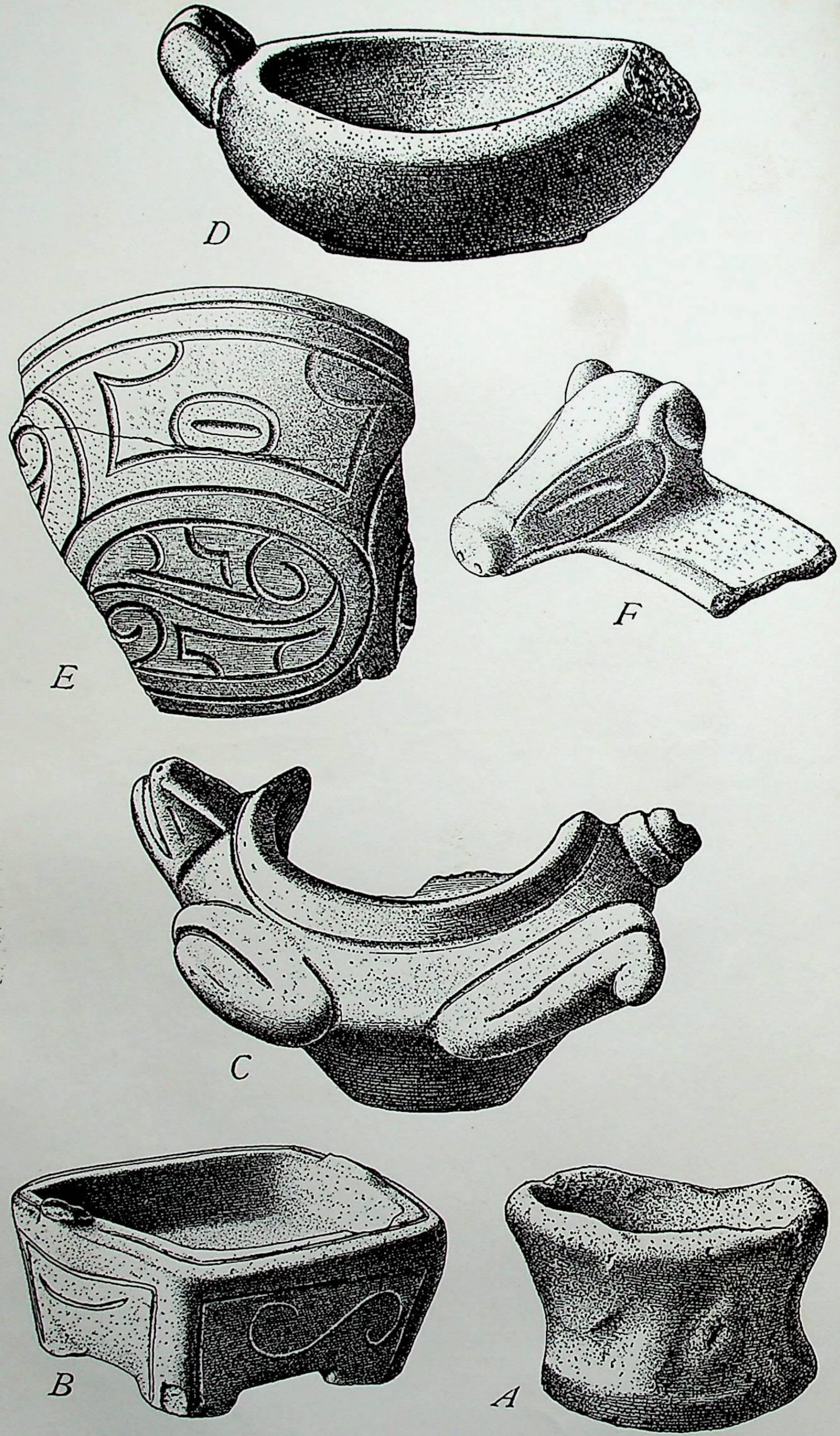
The vessel shown in plate 3, *D*, is also supposed to be a turtle effigy, an almost featureless head being attached to the rim. Opposite the head the rim is broken, indicating where there may have been formerly an appendage representing the tail. This object is one of the few whole specimens in the collection.

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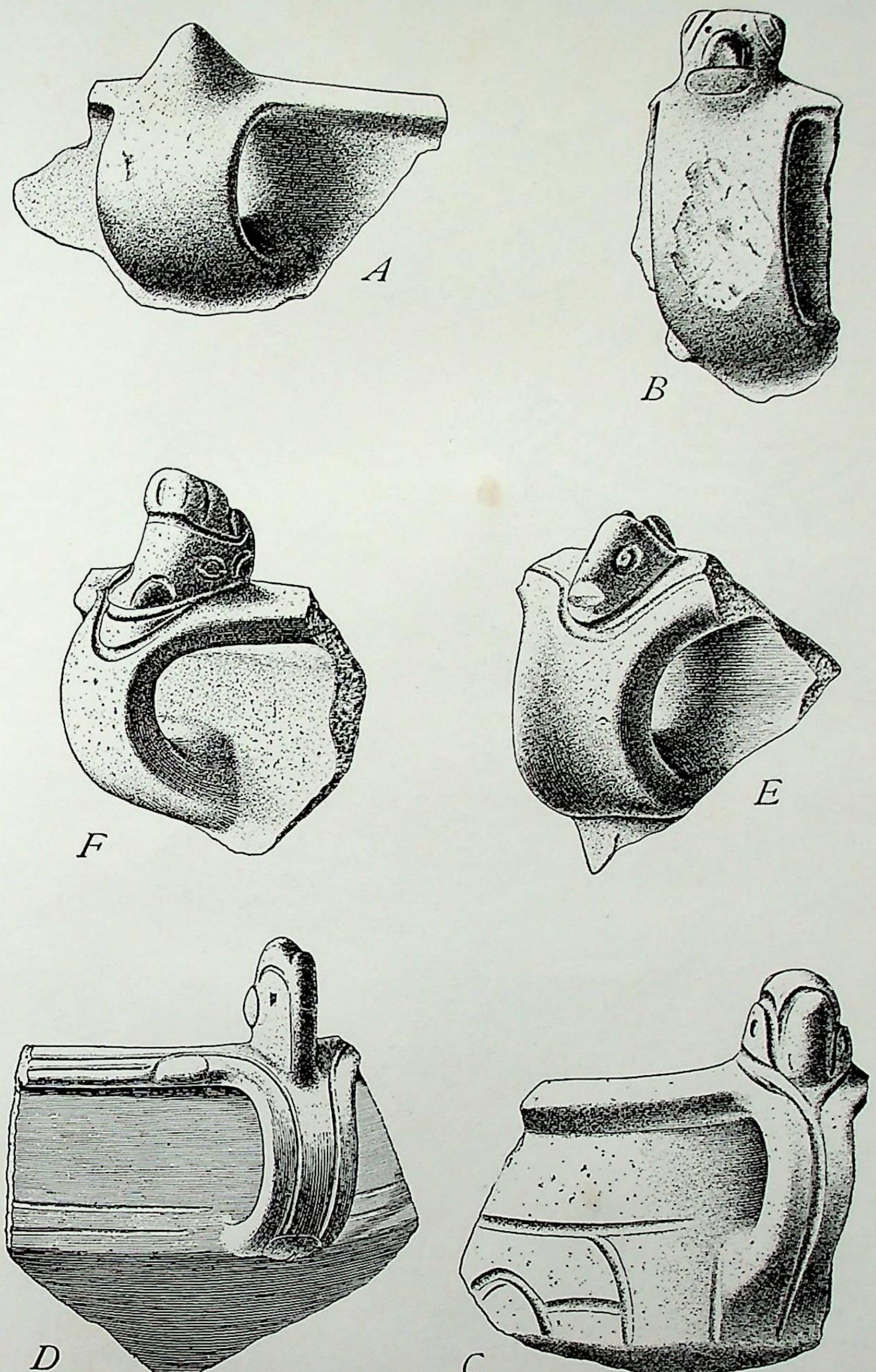
[36] Unlike the clay turtle figured by Collens, this specimen has no raised rim about the base. We know from historical sources that the turtle played an important part in Antillean mythology, which accounts for its frequent appearance on ceramic and other objects.



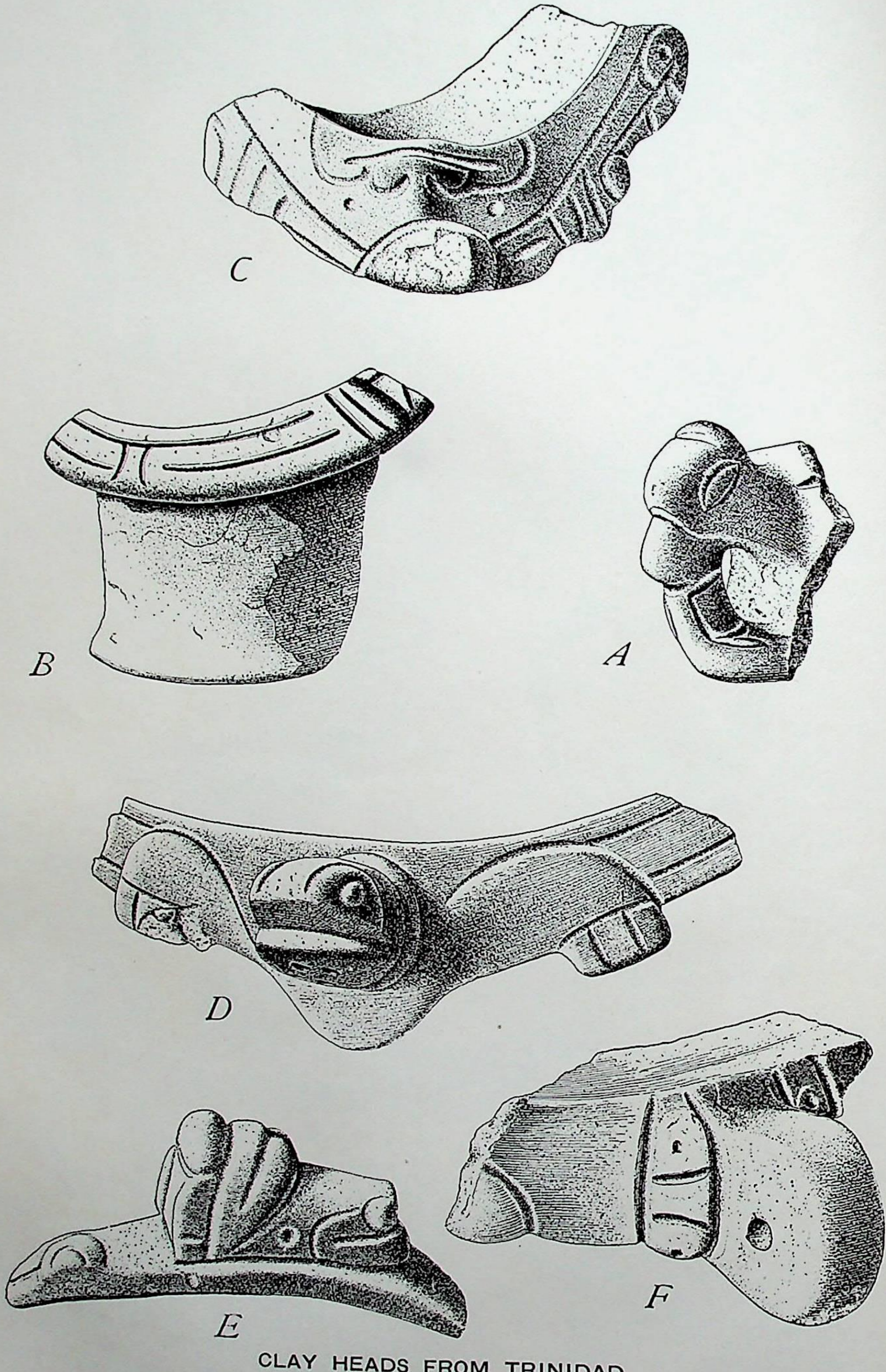
CLAY OBJECTS FROM TRINIDAD



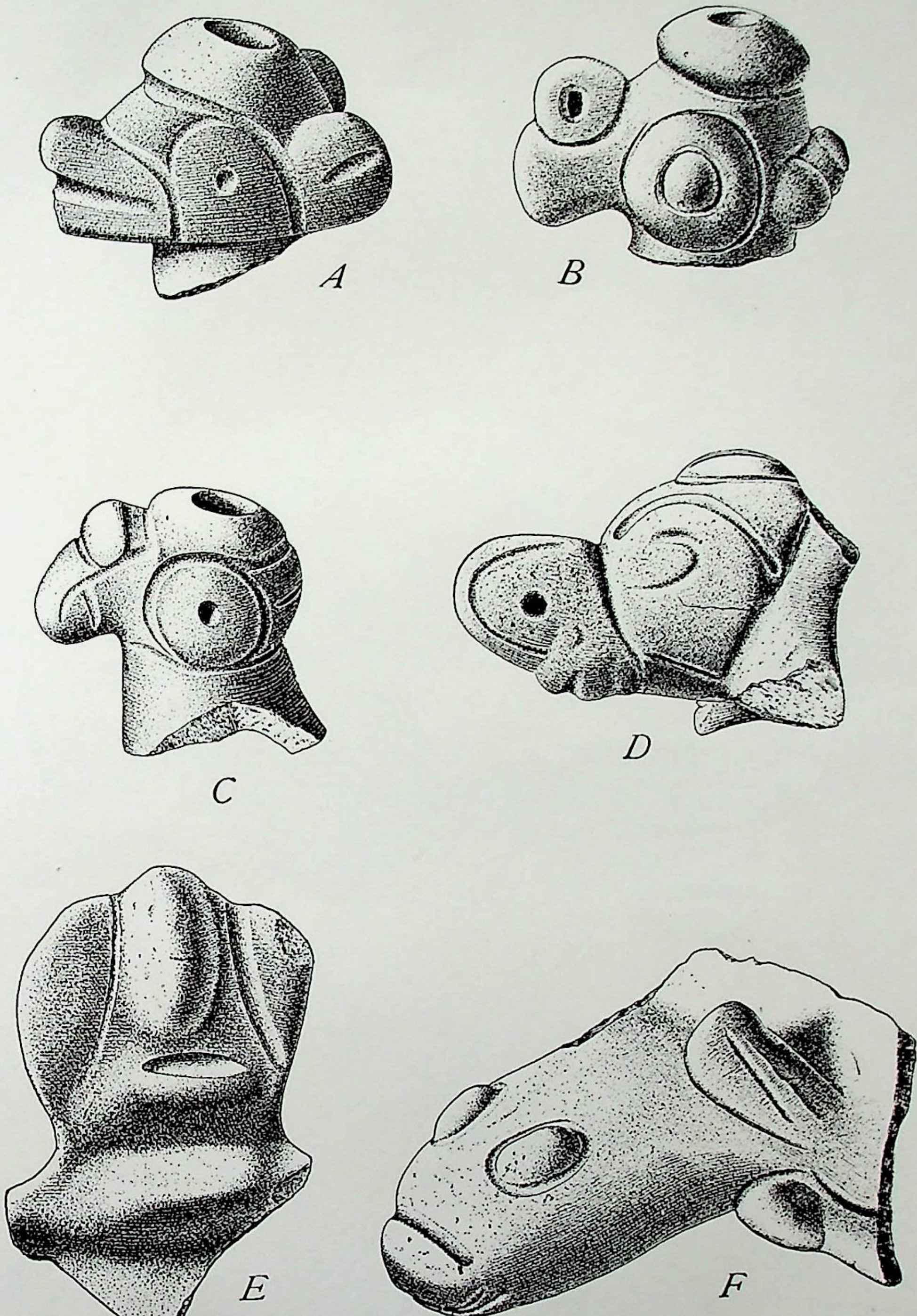
CLAY OBJECTS FROM TRINIDAD



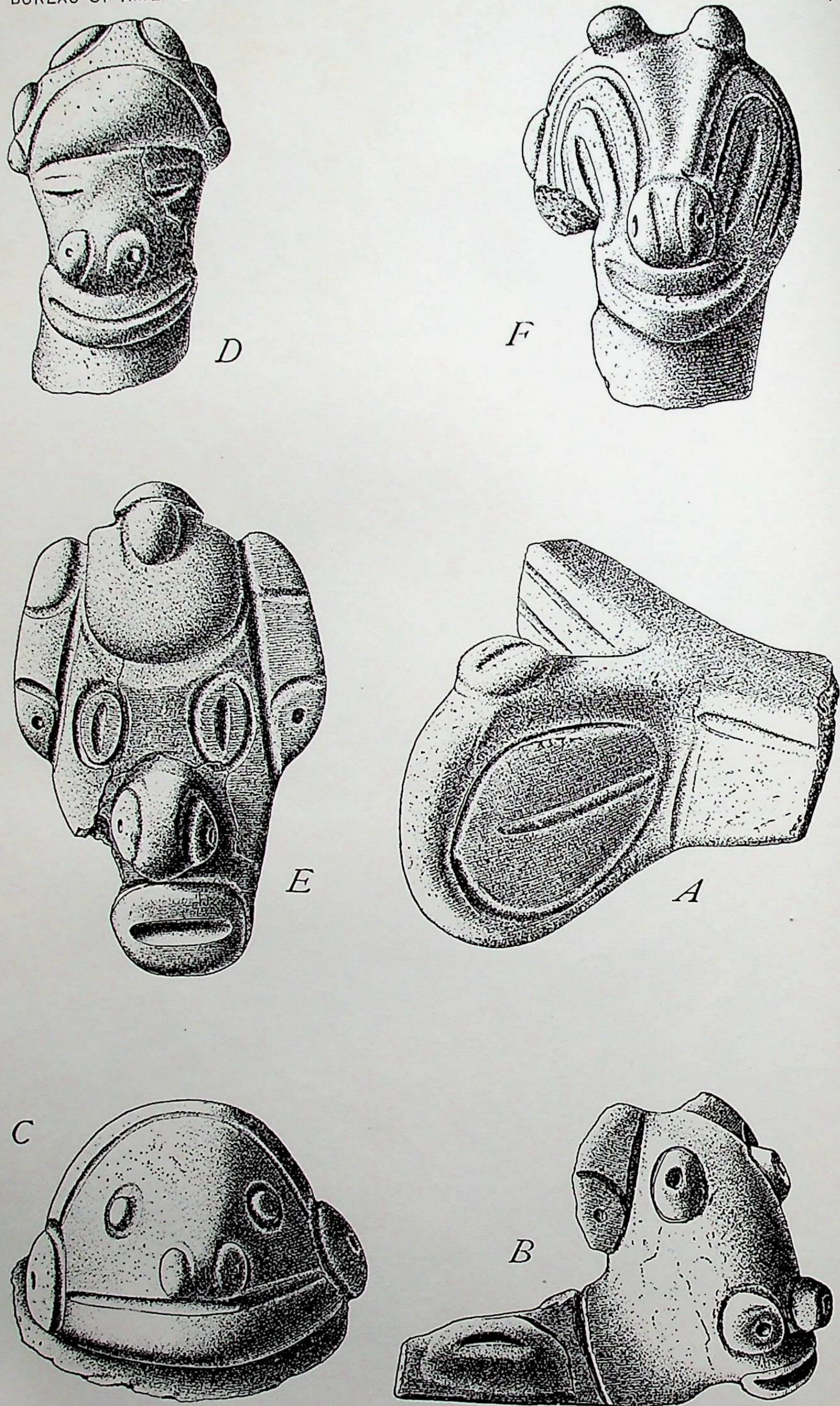
CLAY HANDLES FROM TRINIDAD



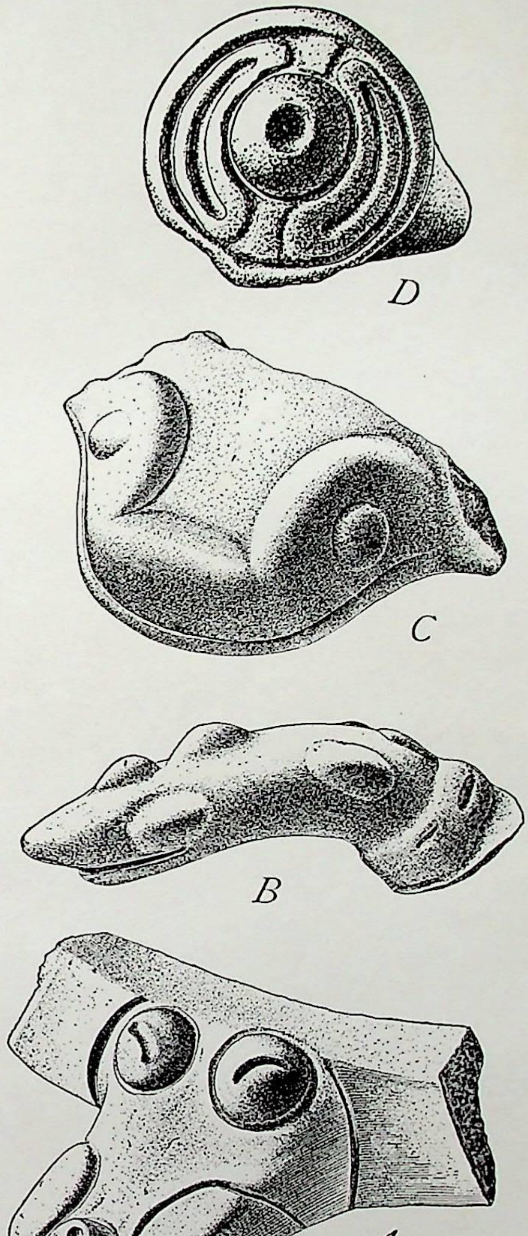
CLAY HEADS FROM TRINIDAD



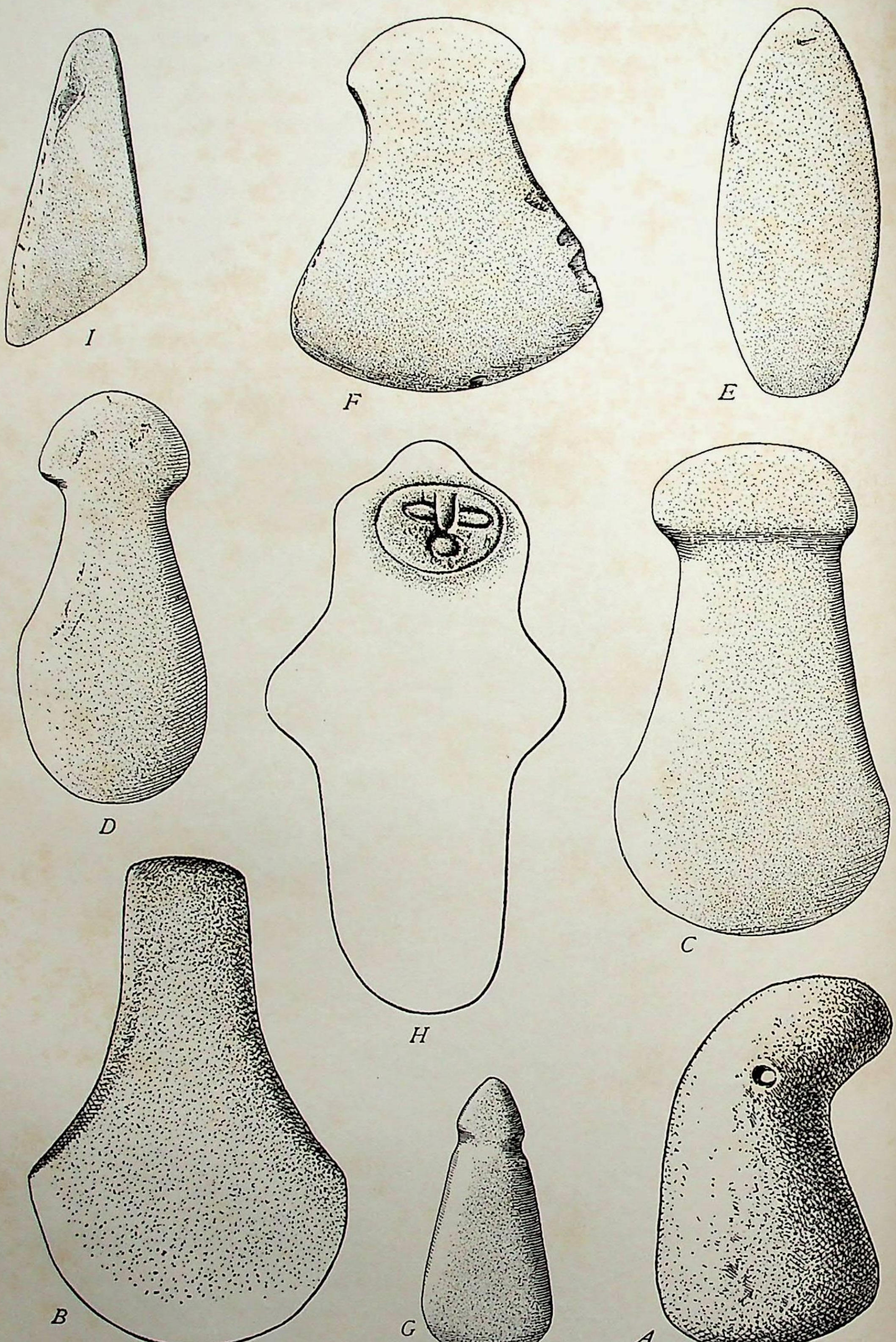
CLAY HEADS FROM TRINIDAD



CLAY HEADS FROM TRINIDAD



CLAY HEADS FROM TRINIDAD



STONE IMPLEMENTS FROM GRENADA AND ST. VINCENT

A, 3.5 inches; *B* 4.38 inches.

In sharp contrast with the thick-walled, coarse bowl last mentioned is a fragment of a vessel (pl. 3, *E*) which may be regarded as one of the finest and most elaborately decorated specimens found at Erin Bay. This beautiful example represents the highest type of incised decoration of which the Antillean potter was capable. It shows the base and practically a quadrant of the lateral decoration of the bowl, which was probably repeated on the missing sides.

In plate 3, *F*, the form of the head reminds one of a peccary or wild hog. The mode of attachment to the rim of the vessel is quite apparent in this instance.

In addition to the specimens of entire pottery above described, many fragments, some of which represent characteristic forms, were excavated from the Erin shell-heap. The best of these are sections of rims and handles, which, being less fragile, are more readily preserved. Their chief features will now be considered.

HANDLES OF VESSELS

Considerable variation occurs in the form of the handles of earthenware vessels, several of which are still associated with portions of the side or rim, while others show how the handle was attached at both extremities. Some of the handles are mere knobs or bosses; other examples are in the form of elaborate heads (pl. 3, *F*), the various modifications of which recall the pottery heads of Porto Rico and Santo Domingo.

The handles of bowls shown in the accompanying illustrations (pls. 4–8) are broken from their attachments. Sometimes they are very simple in form, but more commonly they represent heads which vary more or less in shape. The specimen (pl. 4, *A*) which has a fragment of the bowl attached is one of the simplest forms, loop-shaped with a conical projection near the rim. The handle is broad, with ample space for the fingers. In some specimens the handles are even simpler, as they are without the conical elevation, while the upper end, instead of being attached to the rim, rises from the side of the bowl. In other examples the handle takes the form of a lug or knob.

In plate 4, *B*, instead of a conical knob, the handle bears a simple head in which the eyes, nose, and mouth are crudely indicated, as in other West Indian vessels.

Plate 4, *C*, shows a specimen in which the head surmounting the handle is modeled in greater detail, and a sufficient part of the body of the bowl remains to show the incised ornamentation of the exterior surface, as well as of the handle. Incised lines unite at the throat and continue down the middle of the handle throughout its length.

The figure of the handle illustrated in plate 4, *D*, is similar to that of plate 4, *C*, but the two incised lines ornamenting it continue along the rim of the bowl and end above an oval elevation evidently representing the body of the animal. The slender head of the animal projects upward; the eyes are small, and incised crook-shaped lines extend along the head and partly surround the eyes. The equatorial girt of this vessel is somewhat larger than the circumference of the rim and is decorated with two incised parallel lines.

Another variation in form of effigy handle is shown in plate 4, *E*, the head represented in this case having a somewhat pointed snout, oval eyes surrounded by circular grooves, an open mouth, and projections separated by grooves on the head. This is more massive than the handles before described; it is not incised, and its breadth at the middle is somewhat less than at the point of attachment to the body of the vessel.

One of the most elaborate heads ornamenting a handle partly free from the body of the vessel is shown in plate 4, *F*. This handle, like the preceding, is thick and broad. When placed with the rim of the vessel uppermost the two grooves may be identified as lips, the crescents above them as nostrils, and the ring on the side as an eye. If, however, the figure is turned in such manner that the rim is vertical, what was identified as the forehead becomes the snout with nostrils and mouth.

The handle shown in plate 5, *A*, instead of being broad is small and rounded. It is decorated with incised lines, and the effigy portion is larger than the handle proper. The head is protuberant and the eyes lenticular. Although the other features of the head are considerably distorted, it would appear that the handle in this specimen extends from the top of the head instead of from the neck, thereby turning the mouth uppermost, as in the last example.

In the sections of the rims of vessels next to be described no handles are present. Plate 5, *B*, represents a rim ornamented with two incised, horizontal, parallel furrows, alternating with vertical grooves. This rim is broad and flaring, with rounded margins, imparting a convex surface to this portion of the bowl, which has a straight body and a flat base.

The incised ornamentation on the example shown in plate 5, *C*, is more elaborate than the last. In this case the rim is quite broad, somewhat pointed, and covered with furrows, indicating an elaborate figure which unfortunately can not be wholly determined on account of its incompleteness.

Plate 5, *D*, exhibits a well-modeled rim, probably representing a turtle with open mouth and rounded eyes. The pits under the lower

jaw are uncommon, but like other features are suggestive of a turtle's head. The two appendages at the sides evidently represent flippers.

The well-modeled head indicated in plate 5, *E*, is attached to a section of the rim, but placed lengthwise instead of vertically, as in other specimens. The snout is elongated, while the mouth extends far backward; the eyes are indicated by pits, and a round projection separated by grooves appears on the forehead.

The degree of conventionalization in these specimens is sometimes very great, as in plate 5, *F*, where practically all resemblance to a head is lost. Here we have a disk attached by one margin to the rim of a bowl, which is ornamented with a rude incised design. A handle distantly related to the last is illustrated in plate 7, *A*.

It often happens that the walls of the orifice of a flask-shaped bottle are modified into a perforated clay head,[37] as in the specimens shown in plate 6, *A*, *B*, *C*.

Plate 6 shows varying forms of effigy heads which served as handles of vessels. All of them have well-developed nostrils, eyes, and other facial features. The presence of nostrils differentiates these heads from many others and affords a hint, although obscure, as to the identity of the animal designed to be represented. We find similar nostrils in certain three-pointed stone idols from Porto Rico, which we have other good reasons to identify as reptiles, hence the conclusion is fairly logical that these heads were intended to represent similar creatures.

Plate 7, *A*, *B*, are unlike any other heads in the collection.

The heads illustrated in plate 7, *C*, *D*, *E*, can not, by reason of their highly conventionalized character, be readily assigned to any of the forms above considered.

The two projections on top of the head and the form of the eyes and nose of the effigy shown in plate 7, *F*, are exceptional. The crescentic mouth is suggestive of the same organ in certain undetermined Porto Rican stone idols of three-pointed form.

The unpaired nostril of the effigy shown in plate 8, *A*, is indicated by a single pit in the summit of a conical projection; the eyes are prominent and contain crescentic slits. This head, as shown by a fragment of the rim still attached, projected farther beyond the bowl than is usually the case. The flat form of the head suggests an alligator, but it was evidently designed to represent a mythological conception rather than a realistic animal.

If superficial likenesses of conventionalized figures are regarded as reliable for identification, plate 8, *B*, might well be considered to represent a shark's head, for the position of the mouth in this speci-

[37] This is the first example of a head from a prehistoric flasklike vessel from Trinidad or the Lesser Antilles, although common in Haiti and Santo Domingo.

men is well below the snout, which tapers above uniformly to its end. There is no doubt that the protuberances above the mouth were intended to represent eyes, while those near the rim of the vessel may have been designed for fins or other organs. No representations of nostrils or ears are apparent in plate 8, *C*, but the broad flat head has two eyes and a well-developed mouth. The break at the point of attachment shows that it was a handle of a vessel. There remains a considerable number of other pottery heads obtained at the Erin Bay midden, some of which are too greatly mutilated for identification.

Plate 8, *D*, illustrates a clay stamp, one of a class of objects not uncommon in the Lesser Antilles. The face of this specimen is circular, with an incised design, and was probably used either for decorating cloth or for stamping figures on the face or body in a manner similar to the clay cylinders elsewhere described.[38] These stamps are often elaborate. Some of those lately obtained by Mr. De Booy from Santo Domingo bear images on their handles and rattle when shaken.

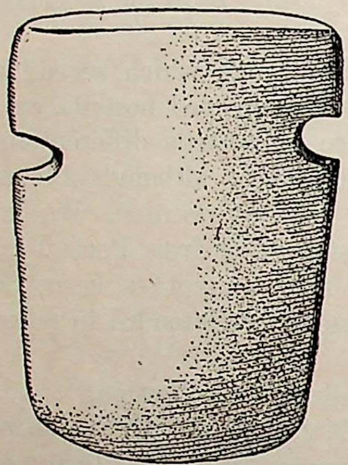


FIG. 1.—Notched ax. Trinidad.

STONE IMPLEMENTS

Stone implements from the Erin Bay midden consist of celts, axes, chisels, pecking stones, mortars, pestles, and other forms. A number of almond-shaped celts, like Porto Rican petaloids, were collected in Trinidad. The most interesting ax is flat, with notches cut at opposite edges, as shown in figure 1.

There is general similarity in the forms of the mortars found in the West Indies, but the pestles vary in different islands. In the Santo Domingo-Porto Rico area pestles commonly have handles decorated with animal heads or even with entire animals, but in the St. Kitts region they are simple unornamented cones, pointed at one end, circular or oval at the opposite end, but with no differentiation of base, handle, or head. The Guadeloupe and St. Vincent pestles are of the same general character as those from St. Kitts, which are identical with those found in Trinidad.

There are several stones in the collection from the Erin shell heap that were evidently used for pecking other stones or for pounding

[38] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxxxvi, *a*.

pigments or bruising roots. They are elongate, sometimes angular, with shallow pits on two or all four faces which served to facilitate handling by providing convenient places for the thumb and forefinger. Circular stone disks, probably used as grinders, were likewise found.

A small, finely polished pendant (fig. 2), made of jadeite, perforated at one end, was found buried deeply among the shells in the Erin Bay midden. In finish this beautiful specimen recalls certain finely polished green petaloids collected in Porto Rico and other islands. The stone of which these objects are made does not occur in the West Indies—a fact indicating that the pendant, as well as the celts, was brought from the mainland, probably from South America.

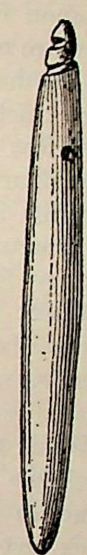


Fig. 2.—Jadeite pendant. Trinidad. (2.81 inches.)

Bone Objects

Considering their occurrence in soil saturated with moisture, it is remarkable that bone objects were preserved in the Erin Bay mound, but many unworked animal bones and a few bone implements were exposed in the course of the excavations. One of the latter is from an unidentified animal, and its flattened form resembles a spatula used in pottery making. Among other bone implements may be mentioned a tube of uniform diameter, supposed to be an ornament, cut off at both ends and having a slit extending along two-thirds of its length.

Objects of Wood

A fine black finger ring, similar to the rings made and worn by the natives in several islands of the West Indies, was found deep in the shell heap. It is made from a seed of the gougou palm. An angular fragment of lignite of irregular form, with an artificial groove encircling it, was found in one of the deepest excavations.

Comparison of Prehistoric Objects from Trinidad with Those from Other Islands

As is generally the case in archeological studies, pottery, from its greater durability and variety in form, is one of the most reliable types of artifacts for the study of prehistoric culture areas in the West Indies. The Erin Bay shell heap shares with the middens of

other islands a predominance of earthenware with effigy forms and relief decoration, and the incised ornamentation of pottery vessels from this mound is strictly Antillean. When we compare these specimens with those from Porto Rico we notice certain specialized features which are distinctive. In geometric designs the incised lines do not end in an enlargement, nor are their extremities accompanied by pits, as is almost always true of pottery from Santo Domingo and Porto Rico. Comparatively few elongated heads of reptiles are found on pottery from Porto Rico, but such forms are common from the shell heap at Erin Bay. The heads from Porto Rico are mainly grotesquely human in form. As a rule, the rims of the earthenware vessels from Porto Rico have approximately the same thickness as the vessels themselves, whereas in Trinidad they are often enlarged, or turned back, and are commonly ornamented with figures as in the pottery from Grenada and St. Vincent.

While it has been necessary to make comparison mainly from fragments, it is believed that the number of characteristic forms of pottery figures from this and from more northerly islands are sufficient to separate the two and to lead to the belief that the pottery from Trinidad is most closely allied to that of the Grenada area, as would be naturally suspected, and that it is only distantly related to that of the Greater Antilles.[30]

While the evidence is not decisive, it appears from the material available that the Trinidad pottery is nearer to that of South America than to any of the northern islands of the West Indies. This fact may be explained by the situation of Trinidad, which lies within sight of South America—a fact that led to an interchange of cultures and peoples of the two localities.

The nearest point in South America where excavations of shell heaps have been made is the Pomeroon district, British Guiana, whence we have a few specimens of pottery. None of these are so well made as those from the Erin Bay shell mound, and there are other indications that the ceramic art had reached a higher development in the islands than on the adjacent mainland.

Regarding the Pomeroon shell heaps, Im Thurn reached the following conclusions: "(1) That they were made not by the resident inhabitants of the country, but by strangers; (2) that these strangers came from the sea, and not from further inland; and (3) that these strangers were certain Island Caribs, who afterwards took

[30] The author has many drawings of St. Kitts pottery which shows still greater differences in form and ornamentation. For likeness of pottery heads from Grenada and Trinidad compare plate LXXXIV, Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., and plate VII and fig. 62, De Booy, Certain Archaeological Investigations in Trinidad, British West Indies.

tribal form in Guiana as the so-called Caribisi, or, as I have called them, true Caribs."[40]

Attention has been called at the beginning of this paper to the fact that the Trinidad aborigines are not spoken of as Carib, and the archeological objects show no likeness to the work of this people, but rather to that of the Arawak, who were the great potters of the Orinoco.

The well-made pottery of Erin Bay suggests an agricultural population rather than the nomadic Carib people, and the form of certain flat clay platters, or griddles, is not unlike those used by the Arawak in the preparation of meal for cassava cakes. The aborigines who made these objects were in a stage of culture similar to that of a people of the West Indies before the coming of the Carib in prehistoric times. Pottery making is more strictly a characteristic of meal eaters, and as the South American Arawak were well-known potters, we can not go far afield if we ascribe the pottery from Trinidad to a kindred people. The nearest South American people to whom we would look for their kindred are the Guaranos, or Warrau, some of whom still inhabit the delta of the Orinoco, only a few miles across the Gulf of Paria, an inland sheet of water which separates Trinidad from the continent.

Although Im Thurn identifies the builders of the Pomeroon shell-mounds as insular Carib, he gives some weight to the theory that they were Warrau, which theory, however, he does not discuss and apparently does not accept. It seems to the author that the pottery found in the Chip-chip mounds indicates a culture higher than that of the Carib, and more advanced as art products than any thus far collected from the Warrau. He regards it as a localized or autochthonous development originally of South American origin, but belonging to the same great prehistoric insular culture found in the Antilles from South America to the Bahamas and Cuba. This culture had been submerged by the Carib in some of the smaller islands, but persisted into the historic epoch in the larger islands which Carib could not conquer.

The conclusion reached from a comparison of the objects from the Erin Bay midden is that while there is a general likeness in pottery from all the islands of the West Indies, there are special ceramic culture areas in different islands. It is also believed that the Carib had no extensive settlement in Trinidad, and that they came to the other islands long after agricultural people had developed on them, or were renegades from some of the islands where the uncertainty of crops drove them to become marauders on others. They are not believed to have made permanent settlements or, as in

[40] Im Thurn, Among the Indians of Guiana, p. 416. See also Rev. W. H. Brett, The Indian Tribes of Guiana, Their Customs and Habits, London, 1868.

St. Vincent and Guadeloupe, submerged the Tainan culture and substituted for it a mixed one.

Tobago

The artifacts ascribed to the island of Tobago, as seen by the author, approach so closely those of the northern part of Trinidad that this island is included in the Trinidad area. In these collections occur several axes with wings on their heads and notches on their bodies, and a few celts of petaloid form, which were purchased by the author when in Trinidad in 1912–13. The majority were said to have been found in a sugar-cane field near Scarborough, Tobago. No middens are reported in the various archeological references to the islands, and none were seen by the author in his limited visits.

BARBADOS

Very little has been published on the archeology of Barbados, and practically no attempt has been made to determine from archeological data the aboriginal culture of the island. References to the aborigines occur in works devoted to the history of the island, among which are those of Hughes, Poyer, Schomburgk, Ligon, and others, but these histories deal more particularly with the colonization epoch and early European history, many having been written before it was recognized that man lived on Barbados before the advent of the whites.

The opinion is generally expressed, even in the most reliable and complete historical accounts, that Barbados was uninhabited when discovered by the Portuguese in 1505, and that the aborigines had wholly disappeared in 1626, when the English took possession of the island and settled it. Although not definitely stated, it is implied by several authors that Barbados never had a prehistoric aboriginal population, but that it was temporarily visited from time to time by Carib or other Indians from neighboring islands for the purpose of fishing or hunting. Archeological evidences show, on the contrary, that the island had a considerable population in prehistoric times, and that the culture of this aboriginal population was somewhat different from that of the neighboring islands.

The large number of implements of shell found both in the interior and on the coast of Barbados, and the extent of the several middens, show without question that the island had a prehistoric population of considerable size. Descendants of the original population lived in Barbados as late as the English colonization, and the name of the chief city of Barbados, Bridgetown, is now thought to be due to its vicinity to the "Indian bridge," made of logs, now replaced by the well-known crossing. There is no doubt that there was an Indian village near Bridgetown at Indian River, one of the best

places for landing on the whole lee shore. The names Indian River and Six Mens Bay can also be instanced as evidence that there were Indian residents in Barbados when these names originated.[41]

The opinion advanced by some writers that Barbados was visited from time to time by Carib from St. Vincent[42] in order to raid the island may have some foundation. There must have been a motive for these visits, which were probably for attacks on preexisting people, the agricultural race, signs of which occur in all the Lesser Antilles. Whether populated or not at the time the whites came, it is evident that many islanders must have lived in Barbados permanently before these visits, for it can hardly be supposed that transient visitors would have brought with them the multitude of implements, pottery, and like objects now found in Barbados. The fact that the natives had few stone implements does not mean that there were few people, but that there was no stone suitable for the manufacture of celts, axes, and the like. The implements were made by permanent residents from the shell which was abundant.

On Ligon's map[43] of the island, published in 1657, 31 years after the settlement of Barbados by Warner, there is figured not far from the place now called "Three Houses" an Indian named "Smyago" carrying a bow and accompanied by a canoe "35 feet long." The position on the map where the Indian is placed and the legend "Three Houses," which takes its name from Indian dwellings found there in early times, prove that men were living on the island in 1657.[44] It must be confessed that this argument loses some force, as camels and hogs are also figured, and these were undoubtedly brought to the island by white men.

There is indicated on this same map of Ligon the name of the early proprietors of the island, and the legend "5 houses" on the coast not far from the present estate "3 houses," which latter, however, does not appear on Bryan Edwards's map, where likewise is the legend "16 men" not far from the bridge which appears on Ligon's map and apparently gave the name of Bridgetown to the main city of the island. On none of these early maps is there any indication of the Indian castle, which is not strange, as all the localities are not indicated.

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[41] The origin of the name Barbados is doubtful. Some authors have supposed it to have been given by the Portuguese on account of the epiphytic plant, hanging like beards from the trees, but other writers have suggested that the natives were bearded.

[42] St. Vincent has been seen from Mount Gilboa, but no one has stated that Barbados is visible from St. Vincent, which is quite natural and explained by the low altitude of Barbados.

[43] Richard Ligon, A True and Exact History of the Island of Barbados, 1657.

[44] The evidence that there was formerly an Indian settlement near "Three Houses" is supported by the many shell chisels formerly found in this neighborhood. One informant told the author that he had seen bushels of these implements from that place, and that they were formerly ground up and thrown on the roads to improve them.

The earliest account of the shell implements, caves, and prehistoric idols found in Barbados that has come to the author's notice was written by Rev. Griffith Hughes,[45] a former rector of St. Lucy's Parish. The Rev. Mr. Cooksey has supplemented this with a short article on the earliest inhabitants of Barbados, one of the earliest in which shell implements are mentioned. Sir Robert Schomburgk's account of the history of Barbados, like those of John Paget (1808) and Dr. Hillary (1752), add little to the archeology of the island. According to Joseph Forte shell chisels[46] have been found in Barbadian caves, over 100 being taken from a cavern 350 feet above the level of the sea.

The more extended account of prehistoric material from Barbados in the Blackmore collection is as follows:[47] "The specimens exhibited from Barbados have been presented to the Collection by the Rev. Greville J. Chester, who has kindly furnished the following information respecting them: 'In Barbados there is no hard stone, nothing harder than coralline limestone; the aborigines therefore were obliged to import *hard* stone implements and weapons from the other islands, or from the main continent of South America. For ordinary purposes, however, they used implements made of various kinds of marine shells,[48] and of the *fossil* shells from the limestone. These shell implements vary in length from 1½ to 6½ inches; some in my possession are beautifully formed. In the commonest type the natural curve of the shell formed the handle. Disks and beads made of shell, and large quantities of pottery, in a fragmentary state, have been found associated with the shell implements. The use of an implement somewhat resembling a hone has not been satisfactorily ascertained, only one specimen out of the considerable number which have passed through my hands being worn down by use. The large number of implements discovered under rock shelters and in gullies proves the existence of a large native population in Barbados, and as shell hatchets are not found in the other West Indian islands, it is clear that they are of purely local origin.'"

It is pretty generally agreed among historians that when the English landed at Holetown,[49] in 1625–1627, the number of Indians on Barbados was small, but as the islands were discovered over a century earlier by the Portuguese, we can not be sure that they were not peopled more abundantly at that time.

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[45] The Natural History of Barbados. London, 1750. This article contains a plate with illustrations of shell implements and an idol.

[46] Note on Carib Chisels, Journ. Anthrop. Inst. Gt. Britain, vol. xl, pp. 2–3.

[47] Stevens, Flint Chips, pp. 235–236.

[48] Found also in many islands, but most abundantly in Barbados.

[49] The site of their landing is now indicated by a monument bearing an appropriate inscription.

The lee coast of Barbados is a flat plain extending from highlands in which arise small streams of water which flow westward to the sea, the mouths being generally closed by extensive sand barriers and beaches. Ordinarily the water of these streams is held back in shallow pools by these bars, but when abundant water fills the river it flows over these barriers. In places, as at Freshwater Bay, the fresh water having percolated through the porous soil, finds its way below these bars and bubbles up in the sea along the shore, making the water fresh.

The plains on the west side of the hills, especially near the shore, are ideal places for Indian camps. Many pottery fragments and other evidences of Indian occupation are seen, but well-defined shell heaps of great height can rarely be traced at the present day.

Near St. Lucy's Parish, in the central part of the island, there are steep, well-marked cliffs in which are instructive caves or cave shelters, common elsewhere on the island, and remarkable fissures called clefts show overhanging cliffs. The aboriginal implements found here indicate that they may have sheltered early man.

Middens

Middens, or sites of aboriginal settlements, are found at various locations on Barbados, occurring inland as well as on the coast. We have records of archeological material from every parish in Barbados, but the following localities are the best known:

1. Small gully near St. Luke's Chapel.
2. Indian River.
3. Freshwater Bay on the border of St. Michaels and St. James Parishes.
4. Codrington Estate Springs.
5. Three Houses.
6. Marl Hill.
7. Speightstown.
8. Holetown.
9. Maxwells.
10. South Point Lighthouse.

The most productive midden for collectors of "Carib antiquities" in Barbados is situated on Indian River, a few miles north of Bridgetown. This midden is rather a series of village sites than a single mound. It can be readily visited from Bridgetown by using the tramway to Fontabel, the terminus of which is a short distance from the locality where the majority of objects were found. The mound at Indian River has yielded many aboriginal specimens, the most complete collection of which is that gathered by Mr. Taylor, of Port of Spain, Trinidad.

The site of the settlement at Indian River is characteristic of those along the west shore of the island. Indian River is nothing more than a small brook hardly able to wash its drainage from its own mouth. It does not empty directly into the sea, but spreads out at its mouth into a lagoon, shut off from the coast by a narrow strip of sand forming the coast line. Aboriginal objects, mainly fragments of Indian pottery, occur in this neighborhood. They are found in most abundance sticking out of the bank at a point near "Old Fort," and many specimens are picked up on the surface of the ground in the neighboring field.

Following along the river toward its source we find a low, flat plain of rich soil capable of cultivation, in which occur many fragments of ancient pottery. Although no great deposits of shells large enough to be designated shell heaps were discovered, the whole plain shows evidence of habitation and contains several home sites, but the field has been so long cultivated by white farmers that the midden form and the sites of the houses have been almost wholly obliterated.

There was an aboriginal settlement at Freshwater Bay, near the road, only a few miles north of the city. The place takes its name from springs of fresh water that bubble up along the coast, forcing itself through the salt water along the shore, and is an ideal one for an aboriginal settlement.

The author visited with Dr. John Hutson, of Bridgetown, an interesting undescribed midden in the marly hills, not far from the cove on the northern end of Barbados. This mound was situated a short distance from the seashore on the side of a depression sloping downward to an inlet that may have served as a landing place. It was a barren place, with very little soil, but many fragments of pots, legs of flat bowls, and two or three pottery heads were found. The soil was scanty, probably worn away, so that these fragments and a few broken shells were all that remained of human occupation.

Caves

Several of the West Indies are known to have caves used by prehistoric man. These natural caves were well adapted for shelter or protection from the sun or rain. Thus far no considerable number of artificial caves have been recorded. On the author's visit to Barbados he inspected a number of caves that bear every evidence of having been excavated by the hands of man.

These artificial caves, which remind one of those in the Canary Islands, are described by early writers, but are not commonly known to modern students of Antillean antiquities.

The few prehistoric objects found in natural caves or cave shelters in Barbados are ample proof of their former occupation by abo-

rigines, but the larger number occur either in the talus of earth in front of these caves or the hills above, being rarely found in the floors. The best made of these caves are situated on the northern end of the island, in St. Lucy's Parish, at Mount Gilboa, but there are many natural cave shelters in the gulches so characteristic of Bermudian geology.

MOUNT GILBOA CAVES

Mount Gilboa is a conspicuous hill when seen from St. Lucy's church or rectory, and resembles the precipitous promontories so common in countries where there are evidences of great erosion. A double line of caves, situated one above the other, can readily be approached from the neighboring road. From a distance they reminded the author of the cavate houses of the Rio Verde in Arizona. Although the walls of these entrances are more or less broken, there was in one instance a rude step cut in the stone floor. A large field of sugar cane, in the soil of which a few fragments of Indian pottery were found, covered the top of the cliff.

The traces of artificial steps cut at the entrance of the Indian caves at Mount Gilboa indicate a former occupancy, and the tradition current in the neighborhood assigns them to the Indians. Regarding specimens of aboriginal handiwork found in the Gilboa caves, Rev. Griffith Hughes says: "Till they came to a large convenient Cave under an Hill, called Mount Gilboa, in the estate of Colonel *John Pickering;* where I found several of their broken Images, Pipes, Hatchets, and Chissels."[50] A negro woman, who lives in the plain near the caves, told the author that shell chisels had been found within her memory on the talus below the caves and the author picked up a fragment of a bowl of aboriginal make near by.

ARTIFICIAL EXCAVATIONS

The artificial excavations in Barbados ascribed to the aborigines are more or less problematical. They differ in form and character from natural caves and their true nature is not known. They are not accepted as aboriginal work by all historians.

The three supposed aboriginal excavations visited by the author are: (1) Indian Castle; (2) Indian excavations at Freshwater Bay; (3) Indian excavations at Indian River.

INDIAN CASTLE

The so-called Indian Castle is situated northeast of Speightstown, on the Pleasant Hill property, about 3 miles due east of Six Men's

[50] Hughes, op. cit., p. 7.

Bay. As one leaves Speightstown the road rises gradually to a hill and passes the castle, the entrance to which appears on the right-hand side about 10 feet above the road. From its elevation the road has been cut down to its present level, which necessitates leaving the road in order to enter the cave by a slight climb on one side. The entrance to the cave is through an archway with a keystone, on which a figure is carved in relief. Both entrance and arch have their walls so smooth that they appear to have been made by metallic implements; their angles are well made and the walls are perpendicular. The general form of the chamber reminds one of a beehive tomb. There are recesses on each side wall and small niches in the rear wall facing the observer as he enters the chamber. The floor is level, slightly elevated above the entrance passage, and there is an opening in the right-hand wall which communicated with a well with slanting sides and floor lower than that of the main chamber. This well is open to the sky above and externally at its base by a passageway entered from a side hill, recalling a limekiln. The whole character of this excavation, especially its conical apex, led the author at first to ascribe it to Europeans. He accepted the opinion that it had been constructed for a limekiln. It is to be said, however, that the walls are comparatively smooth and the angles and arch so well cut that it seemed to have been constructed with more care than is usual with these structures. The theory that it was a place of refuge, for storage, or possibly a chapel, seems to have something in its favor. This beehive subterranean chamber has borne for several generations the names "Indian Cave," "Indian Temple," "Indian Castle"; and the adjective "Indian" must be considered and explained away unless it was made by aborigines. Several old residents affirm that this room has always been called the "Indian Cave" or "Indian Castle." This name was current in 1750, as shown in the following quotation from Rev. Griffith Hughes:

"As there is a very commodious one [cave] in the Side of a neighbouring Hill, called to this Day the *Indian Castle*, and almost in a direct Line from *Six Mens Bay*, and not above a Mile and an half off, in a pleasant Part of the Country, it is more than probable (especially as there was no other so near, and so convenient), that they should pitch upon this, being upon several Accounts very commodious; for, as the Mouth of it faced the West, and, being under the Shelter of an Hill, was secured from the Wind and Rain, and even from Danger by Hurricanes, and as the Entrance to it is so steep and narrow, that, upon Occasion, one Man may defend himself against an hundred, it may be justly called their Castle. But what made this place more complete . . . is an adjoining clayey Bottom, where they dug a Pond . . . which Place is, and hath been, since the Memory of the oldest Neighbours alive, call'd the *Indian Pond*."

"Among several broken Fragments of Idols, said to be dug up in this Place," continues the Rev. Mr. Hughes, "I saw the Head of one, which alone weighed above sixty Pounds Weight. This, before it was broken off, stood upon an oval Pedestal above three Feet in Height . . . The Heads of all others that came within my Observation, were very small: One of these . . . exceeds not in weight fifteen Ounces; and all, that I have hitherto seen, are of Clay burnt."[51]

One or two more heads, former handles of pottery objects, have been found at the settlement near the cave.

INDIAN EXCAVATIONS

If Indian Castle were the only artificial excavation in Barbados it must be confessed its very exceptional character would have great weight, but artificial rooms dug in the rocks also occur at Freshwater Bay and at Indian River, both of these being known as Indian excavations, although they have a distinctive character. It may be noticed that remains of Indian village sites likewise occur near them and aboriginal objects have been found in the immediate vicinity.[52]

As there are remnants of an old fort not far from the Indian excavations at Freshwater Bay, the theory that these excavations are "magazines" has been favored by several writers, but this explanation would hardly hold for the similar structures on Mr. Belgrade's property at Indian River, where no indications of fortifications exist.

The general form of these excavations is rectangular and they measure several feet deep. They consist of several rooms hewn out of the rock and arranged side by side, communicating with each other, sometimes having alcoves or niches in their walls. On the hypothesis that they are subterranean habitations we may suppose them to have been formerly roofed and that the entrance to them, which is not otherwise apparent, was a hatchway in the roof. In similar excavations at Indian River there was a side entrance through the perpendicular bank of the neighboring stream.[53]

While the nature of these excavations is decidedly problematical there seems no good reason to doubt their aboriginal character. They have from the earliest times been known as Indian excavations, and it would be strange if, after having been so called for so many years, they are not of Indian manufacture or associated with the

[51] Hughes, op. cit., pp. 6–7.

[52] Magistrate Sinkler, of Port of Spain, Trinidad, in a figure in his Handbook of Barbados designates these excavations as "Carib graves." They have also been called magazines of the neighboring fort, but in this memoir the author regards them as Indian pit houses.

[53] The rock is here so soft that there was little difficulty in excavating holes of this nature with shell implements.

aborigines.[54] It would certainly be possible for Stone Age man to have excavated them as easily as for Indians of Arizona and Mexico to dig out the well-known cavate dwellings of the Verde or Rio Grande Valleys.

Certain depressions, which have a marked artificial appearance, occur at various localities in Barbados and are called Indian ponds. There is an estate known as Indian Pond which would certainly refer them to Indians. One of these Indian ponds, situated near Mount Gilboa, is mentioned by Rev. Griffith Hughes, and there are other similar excavations in different parts of the island.

Artifacts

The collection of Barbadian prehistoric objects in the British Museum is one of the most important known from this island. Dr. John Hutson, of Bridgetown, has a considerable collection and there is a cabinet of antiquities at Codrington College. The greatest assemblage of prehistoric objects from Barbados was made by the late Mr. Taylor at Indian River and contains several whole pieces of pottery and others slightly broken, besides a number of pottery heads and fragments.

Among the whole pieces of pottery there is a globular bowl like a teapot, with snout on one side, reminding one of the form called the "monkey," still used by the blacks in the West Indies, and one or two platters of somewhat exceptional form. The pottery heads have characteristic forms, but perhaps that shaped like the head of a shark is the most unusual.

Mr. Taylor's collection has several shell objects, among which may be mentioned perforated disks and cone-shaped perforated objects recalling spindle whorls.

Among the problematic objects are two hourglass-shaped objects, concave at each end and narrowed at the middle, which were probably used as rests for pottery. A stamp of disk shape, having a handle in the middle and a design on one face, resembles pottery stamps in the Heye collection, many of which came from St. Vincent. These are flat angular shell plates decorated on their faces with incised lines. Some are perforated near the border, while others are without perforation.

Among stone implements may be mentioned a ball girt with grooves crossing each other at right angles. The few stone celts resemble the Scandinavian type, but petaloid celts also occur. The finest specimen is a well-made shell fetish having a head finely carved at one end and a knobbed extension at the other.

[54] The fact that Indian implements have been found in some of these caves shows that the aborigines utilized the cave shelters and natural caves of Barbados.

One of the most instructive specimens (see pl. 87 *C, D*) from Barbados is owned by Mr. Connell at St. Kitts. It is made of clay, one end enlarged in the form of a head, with a neck prolongated into a handle tapering uniformly to a point. The enlarged end bears eyes, nostrils, and mouth, and its identification as a rude head is unquestionable. This specimen is so highly conventionalized that determination of its use is not possible, but it resembles a stone baton from Porto Rico described in the author's article on Elbow Stones.[54a] Both were possibly carried in the hand as a badge or for ceremonial purposes.[55]

A large collection of fragments of the aboriginal Barbadian pottery was obtained at Marl Hill on the northern end of Barbados. It is a coarse red ware, showing no signs of painting, the surfaces appearing to be much eroded. Judging from the number of clay cylinders with attached fragments of bowls from Marl Hill, the general form of the dishes seems to have been flat or disklike with raised rims. The rims of West Indian aboriginal pottery are often decorated with finger prints and their walls with indentations—a mode of ornamentation still practiced by negro potters of Nevis and elsewhere. A common form of coarse pottery was a flat dish, generally circular, with the edge turned up into a low ridge, imparting a T shape to a section. These are supposed to have been used in frying cassava cakes.

There is nothing in Barbadian archeology thus far brought to light to indicate that the prehistoric people of that island were less highly developed than those of Porto Rico or Trinidad. No cause has yet been discovered for its depopulation so early in history. The island is not volcanic and we have no intimation that a convulsion of nature drove away its prehistoric people or forced them to abandon agricultural pursuits. The island was too isolated to have been frequently raided. It has had several severe hurricanes in historic times, three of which have done much damage, but none of these could have driven away the inhabitants.

One of the important questions in Barbadian archeology is the possibility that there were once cave dwellers or aborigines who excavated rooms in the soft calcareous formations which compose a great part of the island. While there is no doubt that natural-cave dwellers existed in the Antilles at the time of their discovery, it is not so evident that the aborigines excavated their houses out of the rock. As shown in Barbados, however, we have artificial excavations, which have received the names "Indian excavations" and "Indian caves."

[54a] Porto Rican elbow-stones in the Heye Museum. Amer. Anthrop., n. s. vol. xv, No. 3, pp. 435–459, 1913.

[55] Mr. Chester states (Stevens, Flint Chips, p. 236): "I have also a small and beautifully formed implement in the shape of a knife, made of yellowish alabaster, and a kind of a stamp of the same material."

The author is unable, after an examination of these reputed works of aborigines, to decide whether they were made by aborigines or by later inhabitants, but he has no doubt that they are artificial.

ST. VINCENT-GRENADA AREA

The islands included in this area are those called the Carib Islands, par excellence; that is, these are the islands on which the Carib culture had submerged a previously existing agricultural or "Tainan" epoch, and replaced it with their own. As, however, the natives of these islands, at the time of the coming of Europeans, were descended from Tainan women, the men being Carib, the resultant culture was essentially agricultural, especially as descent was matrilineal, and most of the arts and industries were due to women's influence.

Those artifacts that are treated under this area were not all collected in St. Vincent, many having been obtained from the Grenadines, Grenada, and elsewhere, but as they all have common features in their local differences they belong together.[56]

Grenada

The antiquities from the island of Grenada in the Heye collection show that the culture of this island is closely connected with that of St. Vincent, although it has also relationship to Trinidad and South America. Like the other Lesser Antilles, Grenada shows evidences of a shell-heap culture, an agricultural culture, and also a true Carib culture. Prehistoric objects from Grenada closely resemble those from St. Vincent, although they have some affinity with Trinidad. We find petaloid celts, typical St. Vincent axes, and pottery not unlike that from Carriacou.

One of the accompanying figures (pl. 9, *A*) shows a perforated object, another (pl. 9, *B*), an ax with curved cutting edge and elongated shank as if intended to be inserted in a handle of wood. Both of these specimens are in the Berlin Museum, the former labeled "Carriacou, Grenada."

Between Grenada and St. Vincent there are many small islands, some of which have yielded interesting archeological specimens, but the majority have not yet been explored. The author visited Bequia and Balliceaux, but was unable to cross the channel to Battowia, which is one of the most instructive of this group, both from its geographical position and the archeological remains found in one of its caves.

[56] The majority of these objects, which number thousands, were obtained by Mr. Heye from Rev. Thomas Huckerby, whose collection was the largest ever made in the Lesser Antilles. There are still many more, mostly duplicates, in public and private collections on these islands.

Bequia

Bequia, an island near St. Vincent, has several kitchen middens from which various forms of stone implements, fragments of pottery, and other objects have been added to the Heye collection. These were mostly purchased from natives and are like those of St. Vincent. So far as the author can learn no systematic archeological excavations have ever been attempted on the island.

Battowia

The island of Battowia is celebrated for its Indian caves, which have furnished several instructive specimens of aboriginal life. It lies east of Balliceaux, from which it is separated by a narrow channel, which at the stormy time the author was at Balliceaux was impossible to cross without some danger. There are several cabins on the lee side of Battowia inhabited by negroes, who venture across the dividing water at almost all seasons of the year. These primitive people, who are generally employed in raising cotton, were the laborers upon whom the author relied in his excavations at Banana Bay. The best known of the objects obtained from a cave in Battowia are the wooden turtle [57] found by Ober and a duho, which has not, to the author's knowledge, been described or figured.

Balliceaux

After the Carib war in St. Vincent,[58] the most hostile of these Carib Indians, called the Black Carib,[59] were removed from St. Vincent to a small island, Balliceaux, from which they were later transported to Ruatan Island, off the coast of Honduras. Their Balliceaux settlement, now abandoned, was situated on the lee side at a place called Banana Bay, and is marked by walls of a well near the mouth of an arroyo. These walls are European in origin and resemble those found elsewhere in the West Indies. The cemetery of the Carib settlement was easily found, and from it several Carib skulls and some fragments of pottery were obtained. It extends along the beach a few feet above high-water mark, and is small, the burials being shallow.

A general study of the mound at Banana Bay in Balliceaux indicates that the midden was not inhabited for a great length of time, and there is every evidence that it is comparatively modern. The layer of soil which contains artificial objects is not more than a foot thick; the sea has washed into the bank under the midden along

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57 Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. xc, figs. *a, a'*.

58 See "An Historical Account of the Island of St. Vincent," by Charles Sheppard, 1831.

59 Said to be descendants of Negroes and Carib, the former saved from a slave ship wrecked on Bequia.

the shore, exposing one or more skulls and a few skeletons, some of which were removed by the author.[60] These skeletons were interred in the contracted or "embryonic" position and were accompanied by broken pottery, shells, and fragments of charcoal and ashes, but no whole jars were found. The place is now uninhabited and overgrown with manzanillo and other bushes, but none of the trees show marks of great age. The author's excavations verify the historical and legendary account that Balliceaux was inhabited by aborigines and that the Black Carib probably lived at Banana Bay after the Carib war in St. Vincent.

St. Vincent

The three islands, St. Vincent, Bequia, and Balliceaux, seem to be related in all archeological considerations, the objects from them being practically identical. Stone axes from St. Vincent are found in almost every museum which makes any pretension to a West Indian collection.

The Heye collection has over 3,000 specimens from St. Vincent, mainly collected by Rev. Thomas Huckerby, who was Methodist minister for several years at Chateau Belair. He likewise, through agents, collected in Balliceaux and Bequia, large islands near by, many specimens which he also sold to Mr. Heye for his collection.

[60] Evidently the bodies of the dead at Banana Bay were buried in the same way as those described by Du Tertre (Histoire des Isles des Christophe, etc., p. 455): "As soon as one dies the women take the body, wash and clean it with great care. They paint it with roucou from the feet to the head, greasing the head with palm oil, comb them, dress their hair, and arrange as decently as if they were going to a solemn assembly; then they wrap them in a new bed of cotton which no one has ever slept in. They make the grave where they are to be buried in the same house where they have died, or they build one for the express purpose, never burying the dead without covering them with earth, nor omitting any ceremony they are accustomed to have wherever they happen to be."

In an account of the burial of a child we read (op. cit., p. 456): "They asked us for a little abandoned 'casa' house in our garden, which we gave them, and they immediately all set to work on the house and put it in as good condition as though entirely new. They made sepulture of their child in the following manner and with these ceremonies: They made a grave in the middle of the house, round, and 3 or 4 feet deep. They placed in it the child prepared and arranged as I have said and wrapped in its cotton bed. They placed it seated on its heels, the two elbows on the two knees, the head resting on the palm of the two hands. Then all the women sat around the grave and commenced to sigh strangely; then they intoned a sad and painful song. This song was divided into sighs and often cries in a loud voice with the eyes turned to heaven. They shed so many tears that it would have saddened the hearts of the most hardened. The husbands were seated behind the wives, bathed in tears in imitation of them. They embraced them with one hand as though to console them and caressed them with the other. During this time a man filled up the grave with the end of a board, from time to time the women threw in earth. After these ceremonies (which lasted a good hour) the women buried all the valuables of the dead person which consisted of certain little baskets, cotton thread and other little bagatelles on the grave." Referring to this method of burial Labat adds (vol. VI, p. 163): "I learned during my sojourn in Dominica that when the master of a house came to die that he was not buried in the corner of the house, but in the middle, after which the house was abandoned and another was built in a different locality without the thought ever occurring to any one to return and lodge in that place. I have sought with care the reason of this ceremony so extraordinary without having been able to discover anything else than that it was an immemorial custom with them."

There are also specimens from St. Vincent in the Berlin Museum collected by Mr. Huckerby. During the author's stay of about six weeks at St. Vincent he visited several refuse heaps, prehistoric mounds or kitchen middens, on both the windward and leeward coasts. An enumeration of a few of the most important of these is given below, but there are many others of smaller size that are not considered. Through the kindness of Mr. Huckerby he saw several of the St. Vincent pictographs and visited the middens at Fancy and elsewhere, where a number of strange artifacts are said to have been found. The pictographs of St. Vincent have been well described by Mr. Huckerby.[61]

KITCHEN MIDDENS

Refuse piles and other evidences of former occupation by the aborigines are found along the leeward coast of St. Vincent from Kingstown to the extreme northern end of the island, especially wherever there were convenient landing places or where valleys opening to the sea presented available land for cultivation. They are abundant at Barrouallie, Petit Bordel, and Chateau Belair, in which neighborhood we often found bowlders with pictographs and other evidences of past occupation. There are several middens on the windward side, as at Argyle, Stubbs, Overland, and Ouria. The volcano Soufriere has, however, covered with successive eruptions of ashes most of these evidences of village sites in the northern end of the island, which has been designated on maps since 1733 by the name of the Carib country.

The midden at Fancy, designated on Bryan Edwards's map as a Carib settlement, lies in the Carib country at the extreme northern end of the island. It is extensive, but has been somewhat modified in form by the last eruption of Soufriere. A small stream flowing past the Estate House at Fancy has cut its way down through the soft formation, exposing a bank in which were gathered many fragments of pottery and worked stones. The top of a low bluff, near where this stream empties into the sea, is covered by a Carib cemetery. Here the stream has encroached on the bank, exposing skeletons of the former natives and washing out human bones that are strewn along the base of the bank.

The midden at Stubbs, situated on the windward side of St. Vincent, is one of the largest in the island; but as its surface is now almost wholly under cultivation, digging in it was not feasible, as it would disturb not only cultivated fields, but also the foundations of inhabited houses. Fragments of pottery are common along the shore where the bank is eroded by the sea, and stones showing

[61] Amer. Anthrop., n. s. vol xvi, pp. 238–244, 1914.

evidences of having been worked by human hands can be picked up in the bed of a neighboring stream. All along the high bluffs on the sea side and in the bank of an adjacent inlet layers of pottery occur and several fragments of bowls were picked out of the cliff. Superficial indications show great possibilities when systematic excavations are made at this place. One or two mortars with surfaces hollowed out, but too large to be moved any considerable distance, were seen lying at the base of the bluff or on the top. Not only pottery fragments, but likewise shells, fragments of tests, and claws of crabs occur with human bones mingled with the fragments of pottery.

The Oberland midden lies near Oberland village and is approached by a good road from Georgetown. This portion of St. Vincent suffered greatly from the eruption of Soufriere volcano in 1902, and many estates were destroyed, the inhabitants being asphyxiated by poisonous gases. A road cut through the bank in descending to a small stream exposed a section of the midden and revealed terra cotta or pottery heads, some of which have been washed into the ravine below by rains. This site shows evidences of a settlement of considerable size, and would well repay systematic excavation.

The surface of the Argyle midden has been cultivated many years and is now covered by fields of arrowroot. It lies to the left of the road shortly before crossing the bridge over the Yambou River going north, and can be followed for some distance on the way to the Yambou pictographs. Nothing of great importance has been obtained from this midden, although fragments of pottery are not rare on the surface.

PICTOGRAPHS

Following up the river to the narrow defile, Yambou Pass, a trail leads to bowlders on which were cut some of the finest pictographs in St. Vincent.[62] They overlook the beautiful stream which here flows between two high cliffs amidst fascinating scenery, with tall palms and other tropical vegetation. The valley at this place is sparsely cultivated, and to reach the Yambou pictographs one has to cross a ditch several times which feeds a sugar-cane mill lower down the valley. It is, however, possible to drive directly to the pictographs or to within a short walk, although the road is obscure and ends rather abruptly.

Pictographs recorded by Mr. Huckerby occur in St. Vincent at the following localities: (1) Pass leading into Mesopotamia Valley at Yambou Pass; (2) Layou; (3) Villa; (4) Buccament Valley; (5) Barrouallie; (6) Petit Bordel.

[62] These are figured by Rev. Thomas Huckerby in Amer. Anthrop., n. s. vol. xvi, pp. 238–244.

ARTIFACTS

Geological differences between the islands of Barbados and St. Vincent are great, and the culture of prehistoric man in the two may have been equally divergent. This diversity is reflected not only in the form and character of the implements made in the two islands, but also in the material of which they were made. The former does not furnish hard rocks for implements, the prevailing rock being coral limestone; in the latter the rocks are volcanic, very hard, and suitable for fine implements.

Stone axes with extensions on the heads are characteristic of the zone, including Grenada, St. Vincent, Santa Lucia, Martinique, Dominica, and Guadeloupe, but are not found in the Greater Antilles, Barbados, or Trinidad. These implements are, in most instances, not very sharp on their edges and are only rarely pointed at the head, true almond-shaped or petaloid implements being rarely found. This culture area is one of the best known for a peculiar type of "Carib stones" well represented in different museums in Europe and America. They are often found in caches, suggesting either unfinished or ceremonial implements.[63]

The island of Santa Lucia, which has also yielded many artifacts in the Heye collection, was not visited by the author, but from a collector he has learned that the middens resemble those of St. Vincent, the islands being in sight of each other. The artifacts from that island are mainly stone axes and fragments of pottery.

The main feature of the stone axes from St. Vincent is an extension or ear on each side of the head, which imparts to it a variety of forms, as notched, indented, and serrated or forked. This type, preeminent in the St. Vincent zone, is well represented in collections from Guadeloupe and Dominica, and to an extent from Grenada, but it is sporadic, not occurring in St. Kitts, Barbados, Trinidad, or other contiguous regions.

STONE IMPLEMENTS

The prehistoric stone implements from the St. Vincent area may be classified into divisions as defined in the following pages:

- Celts and axes.
  - Petaloids.
  - Axes and chisels.
  - Axes with caps.
  - Grooved hammers and axes.
  - Asymmetrical axes.

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[63] The collection of Carib stone implements in the public library of St. Vincent has a few forms of the curved flat objects in which we find a continuation of the notch forming a projection that is unfortunately broken, but there is a much larger collection in the Heye Museum.

Tools.
Implements of crescentic form.
Eared axes.
Engraved axes.
Problematic stone objects.
Grinding implements and pestles.
Stone fetishes, amulets, and idols.
Enigmatical objects.

Celts and Axes

PETALOIDS

There are a very few examples of the first group of stone implements or true petaloid celts in collections from the St. Vincent region, and a much smaller number of these have heads or figures engraved upon their surfaces. Their general form is almond-shaped, identical with those from Porto Rico. They may be characterized by a sharp edge at one end and a point at the opposite end. These celts are supposed to have been once set in a wooden handle or to have been carried in the hand without any such attachment. No specimen of the so-called monolithic type of petaloid, or those with handle as well as blade made of one stone, has yet been recorded from the Lesser Antilles, although several are known from the larger islands.

AXES AND CHISELS

The second group of stone implements, or axes and chisels, differ from petaloids in the absence of a pointed tip, which is, as a rule, rounded into a head. While in the first group no head is differentiated from the body or shaft of the blade, and there is no groove surrounding the implement for the attachment of a handle, in this group there are notches in the margin that may have served for that purpose or grooves to which a handle was attached. Plate 9, *A*, represents an unidentified perforated stone object. The edges of some of these axes (pl. 9, *B*, *C*) are often so blunt that they could hardly be classified as cutting implements, although they may have been used for hollowing out logs for canoes after fire had reduced the interior of the log to charcoal. *D* and *F* are typical forms.

The stone chisels (pl. 9, *E*), of which there are a few, are longer and narrower than the axes, being beveled at one or both ends into a cutting edge, but these implements are often pointed at one or both ends. The pointed specimens are sometimes flat on one side and curved on the opposite side, although many are curved on both faces. When the edges of these chisels are squared they often bear

projections on one or both borders, but they never have raised ridges or encircling grooves, separating the head from the body or shaft.

The opposite margins of a number of chisels belonging to a well-defined group are indented, but these indentations are only rarely connected by encircling grooves, indicating a point of attachment to a handle. This type is very numerous and assumes a variety of forms, but the many modifications included in it differ mainly in the shape of the head and shaft, as seen in profile. Thus the head may be extended laterally into two ears like horns, as viewed from one of the flat surfaces, or may be decorated with carvings on their edges. The blade is sometimes perforated, and the head often assumes a fishtail shape or bears a crest on its terminal margin.

In one of the modifications of stone implements enumerated a head (pl. 9, *G*) is still further differentiated from a shaft by a shallow encircling groove that connects the two marginal indentations above mentioned. While this groove is ordinarily more pronounced on the margin, it is often so shallow on the sides that it is almost invisible and difficult to trace throughout its whole length. Its breadth may vary, but the head is always clearly indicated. Paired and unpaired projections sometimes occur on the margins of the shaft, as may be seen when these implements are laid on their flat side. In one of the numerous groups an asymmetrical outline is brought about by lateral extensions.

A normal ax with the head perfectly symmetrical on both margins is shown in plate 9, *G*, but the form of the head is almost triangular. In this implement the marginal indentations are so shallow that the general shape approaches that of a petaloid or almond-shaped celt. An examination of the figure and a study of the character of the marginal indentations sometimes shows that they are in all probability secondary in manufacture.

In the specimen seen from obverse and reverse surfaces, from which plate 9, *H*, was made, we have an approach to a ceremonial celt, or one with a figure engraved on its surface, but of a form quite unlike any yet figured. This specimen has two projections, one on each side of the blade, while on the head there is cut an oval incised figure, in which the eyes, nose, and mouth of a human face can be readily seen. The incised lines of the face of this specimen have been more or less deepened since it was found, but the fresh markings follow the original engraving and are readily detected. The aboriginal character of the head of the celt is so evident that this specimen, although unique, is regarded as of veritable Indian manufacture.

The Heye collection possesses a large number of flat stone implements of triangular shape, often sharpened on one side by beveling. The other margins and front are rounded, and the specimen

was evidently used for scraping skins or cutting fibers, sticks, or other material. Two stone implements of this type with straight edges are shown in plates 9, *I*, and 10, *A*, while in the third, illustrated in plate 10, *B*, the cutting edge is almost semicircular. These are supposed to have been used as cutting implements, and to have been held in the hand in such a manner that the straight edge was opposed to the palm and the circular edge free. Their form suggests the semilunar slate knives of certain of the aborigines of New England, who, like all primitive peoples, endeavored to have a good knife.

The notched edge of the implement in plate 10, *C*, suggests a saw or a scraping implement, like the semilunar knife in figure *B*.

The object shown in plate 10, *D*, has a semicircular form, with its convex side so rounded that a section takes the form of a crescent. The concave surface, on the contrary, is flat, and the end of this latter region is prolonged into a crescent horn, which is pointed, the other extremity, or that shown on the right, being almost globular in form.

One of the most characteristic implements of semicircular shape from St. Vincent is represented in plate 10, *E*. This implement may have been a spear, its length from one point to the opposite being greater than its breadth. In this implement the curved or cutting edge shows evidence of having been chipped after the polishing shown on the two sides and the cutting of the straight edges. Plate 10, *F*, like the last mentioned, exhibits marked evidence of chipping, which is here confined to the poll or head and sides, the curved edge being comparatively smooth and sharp and destitute of any signs of secondary chipping.

The breadth of the ax, plate 10, *G*, from one end of the cutting edge to the other, is slightly greater than elsewhere on the blade. Its margin is notched at those points, which imparts an unusual appearance to the whole implement. As prehistoric perforated axes are very rare in America, this fact gives more than usual interest to the specimen shown in plate 10, *H*. The perforation in this specimen is at right angles to the surface, or from one flat surface to another, not from one edge to the opposite as occurs in those from the Stone Age of Europe.

The unusual stone object represented in plate 10, *I*, is unique among stone implements from the Antilles. Unfortunately, it is broken, and the specimen seems, when entire, to have had a projection at that point. This implement is, however, wholly different in form from the double-bladed ax figured and described by Prof. Mason in the following lines: "A double-edged, grooved blade, of light brown color. The form is common enough elsewhere, but cer-

tainly it seems to be the first appearance in this area of an ax with both ends alike."[64] It is needless to say that the use of this implement must remain in doubt until other examples are brought to light.

There are represented in plate 11 a number of artificially formed flattened stones which generally have their surfaces more or less convex and their margins rounded. The characteristic features of one type are indentations, one in each margin, but there is no encircling groove connecting them by which the ax was hafted to a handle. There are two divisions of this type, the first group including those in which both sides of the notched area are of about equal size, imparting a dumb-bell shape as seen in profile, and a second (*D*) where they are unequal. The former is well shown in a specimen (*C*) in the Heye collection, as are all those considered under this heading. Plate 11, *A*, represents a chisel and *B* a celt-like form with point cut off square.

No difference in size between the two halves of the object appears in plate 11, *C*, where both parts are crescentic when seen in profile. The surface of the notch is convex and has angular edges.

The general form of the specimen, plate 11, *C*, is like a dumb-bell, the two halves being about spherical, and so flattened on the sides that the length is less than one-fourth of the width of the longer diameter. The general form of plate 11, *D*, is circular, but its upper half is much reduced, as compared with the lower. The indentations separating the two are deep and the specimen is a comparatively thin object with blunt edges. Its nearest ally, belonging to the same type, in which two sides are slightly incurved and two remain flat and oblong, is rectangular in form.

In plate 11, *D*, the margin notches are very deep, imparting a spool shape to the implement when seen in profile, although the curves of the upper and lower halves differ somewhat in size.

The objects represented in plate 11, *F*, *G*, are stone implements having more or less rectangular profiles, angular sides, and flat, undecorated surfaces. It is not necessary to assume that they were ever furnished with special handles; they were more likely held in the hand for the use they served. Although rudely made, there is no doubt that *E* and *H* were artificially fashioned. Their forms are not symmetrical. In the implement figured in plate 11, *I*, there is a marked triangular form, which, but for other features, would be considered among the group designated as triangular implements.

Plate 11, *J*, represents a stone knife and *K*, a petaloid celt.

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[64] Mason, The Guesde Collection, p. 789, fig. 109.

The essential characters of plate 12, *A*, *B*, *C*, *D*, are such as to ally these implements with the same type, their differences being mainly in details. The blades (*A*, *B*) have practically the same general outline, one (pl. 12, *B*) being sharper than the other. Plate 12, *F*, has the ears turned upward. The margin of the blade is somewhat flattened. The use to which these implements were put is doubtful but they may have been used for grinders.

Plate 12, *J*, represents a perforated ax, while *K* shows a groove for hafting.

In plate 12, *L*, a head in the form of a knob is well developed.

Plate 12, *M*, *N*, represent implements in which the head is expanded slightly on each side, the ends of the projections becoming pointed. The specimen *N* has a well-developed shank, the edge of which is curved, in places relatively sharp. It is one of the best-formed and most carefully made of all the implements of this type.

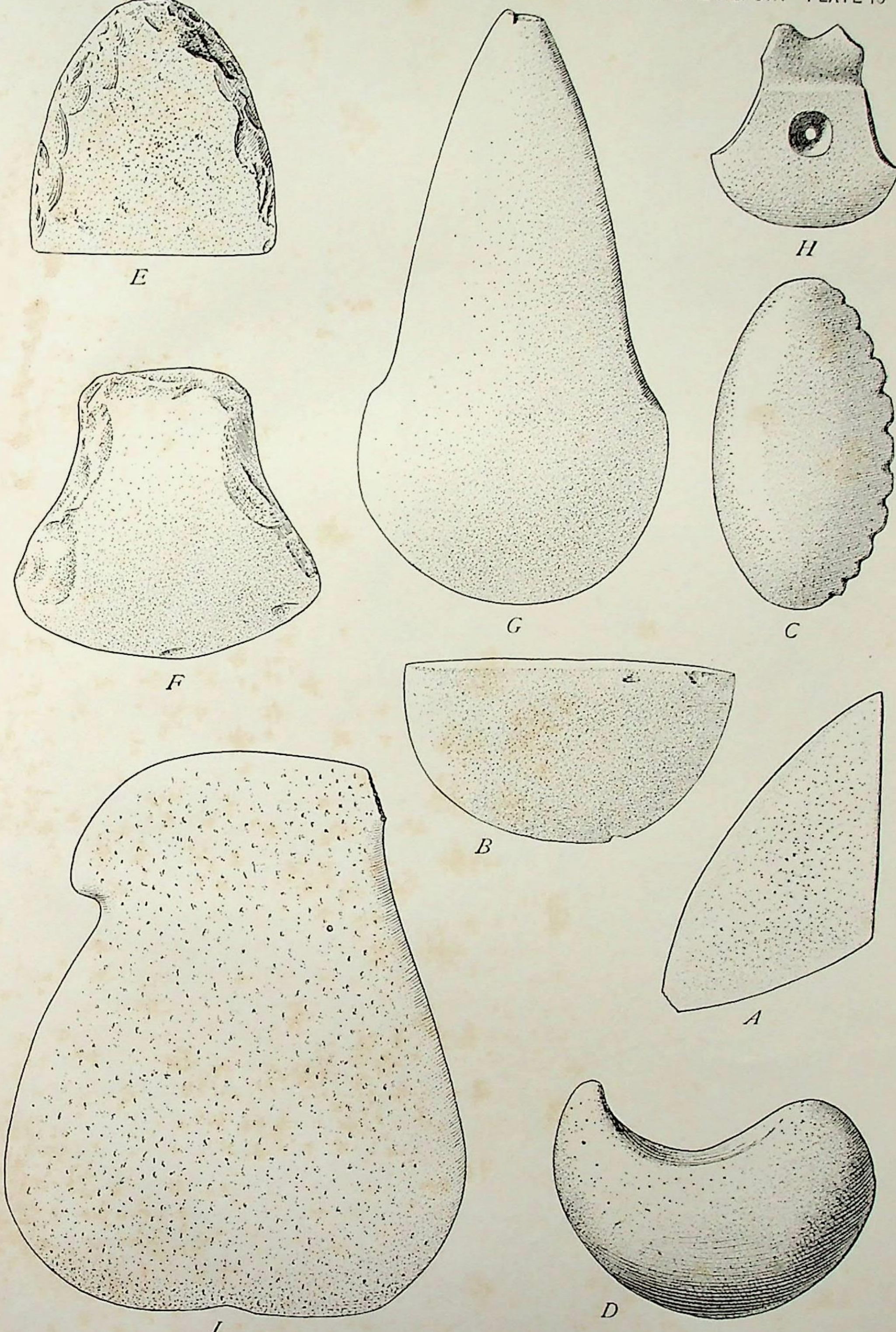
Modifications of different parts of these specimens are common; thus a still further development of the head and an extension of the two extremities is found in the implement, plate 12, *O*. Its cutting edge is curved to such an extent as to be the same as the general curve of the margin of the blade.

In plate 13, *A*, there is a well-marked separation of the cutting edge and the sides of the blade. Plate 13, *B*, has a form similar to the last, but differing from it in details which are apparent.

The marked feature of plate 13, *C*, is the comparatively great development of the head as compared to the rest of the implement, and a marked secondary beveling of its edge, the original form being practically identical with other members of this type, except in the relatively deep lateral notch.

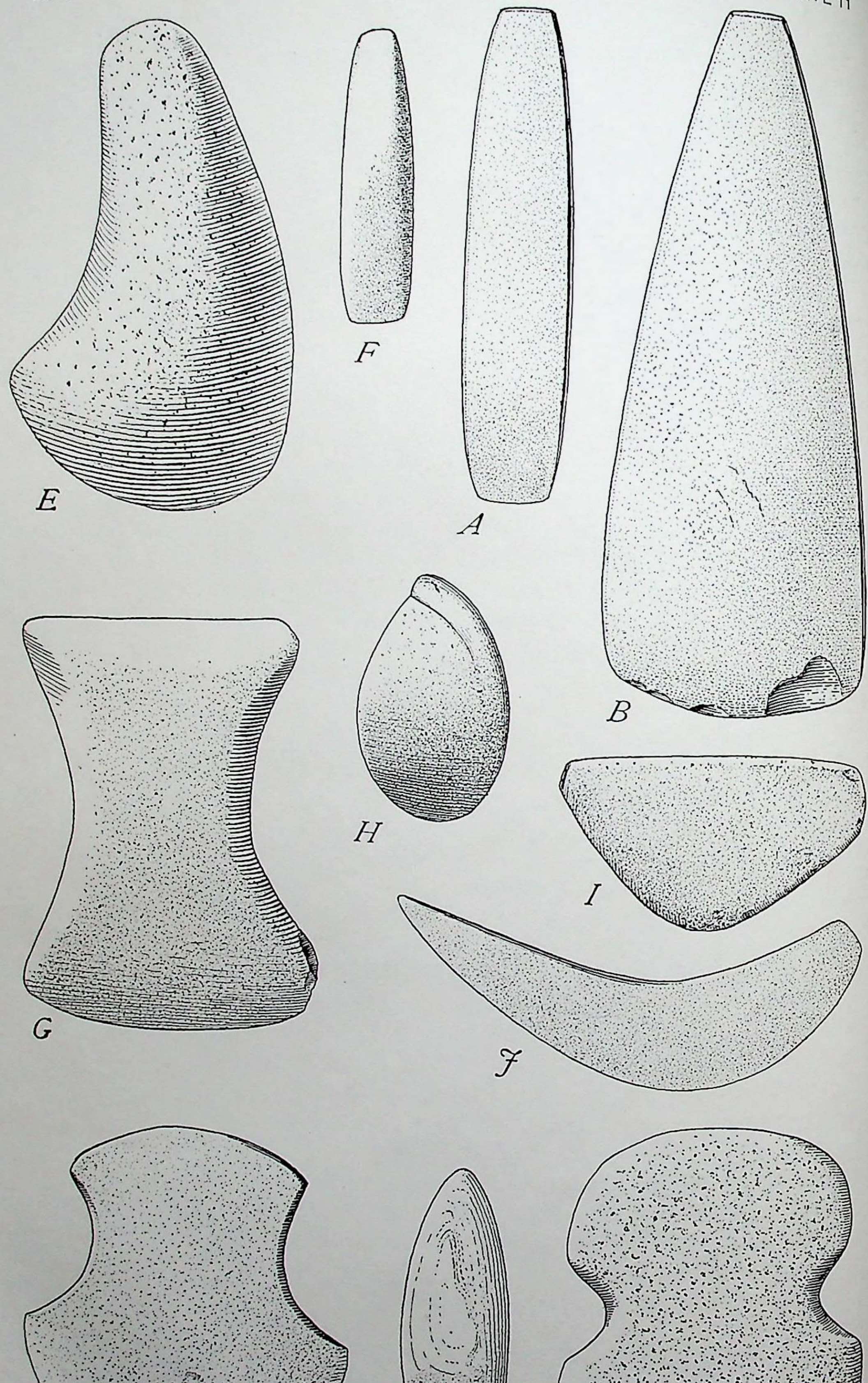
The implement represented in plate 13, *D*, differs from all others belonging to the group of notched axes in having its blade developed to a relatively much greater size at the expense of the head, which is comparatively small. The form of the implement, when seen in profile, is such that its edge is continued by a gentle curve into the sides of the blade—a feature that might well be compared to an almond-shaped or petaloid celt. The convex head is roughly indicated by the two shallow notches.

In plate 13, *E*, is represented a fine ax, the blade of which, when seen in profile, is almost circular, while the head is lenticular, continued on each side into a sharp point. The distinguishing characteristic of plate 13, *F*, is the presence of a circular pit situated in the middle of one side of its blade. This pit is deeply and symmetrically sunken and has a smooth surface. The edge of this ax is much broken and the head is slightly notched.



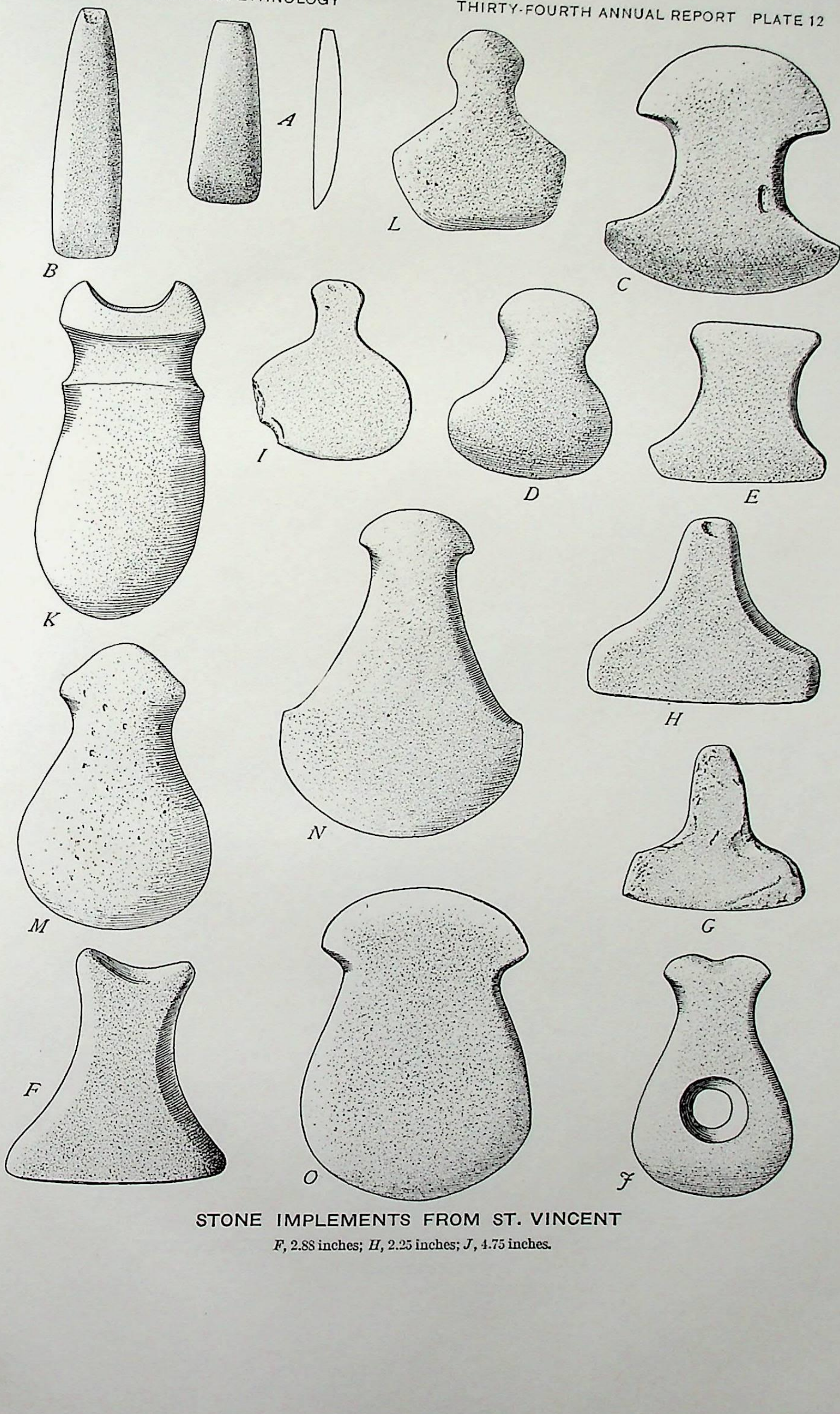
STONE IMPLEMENTS FROM ST. VINCENT

B, 6 inches.



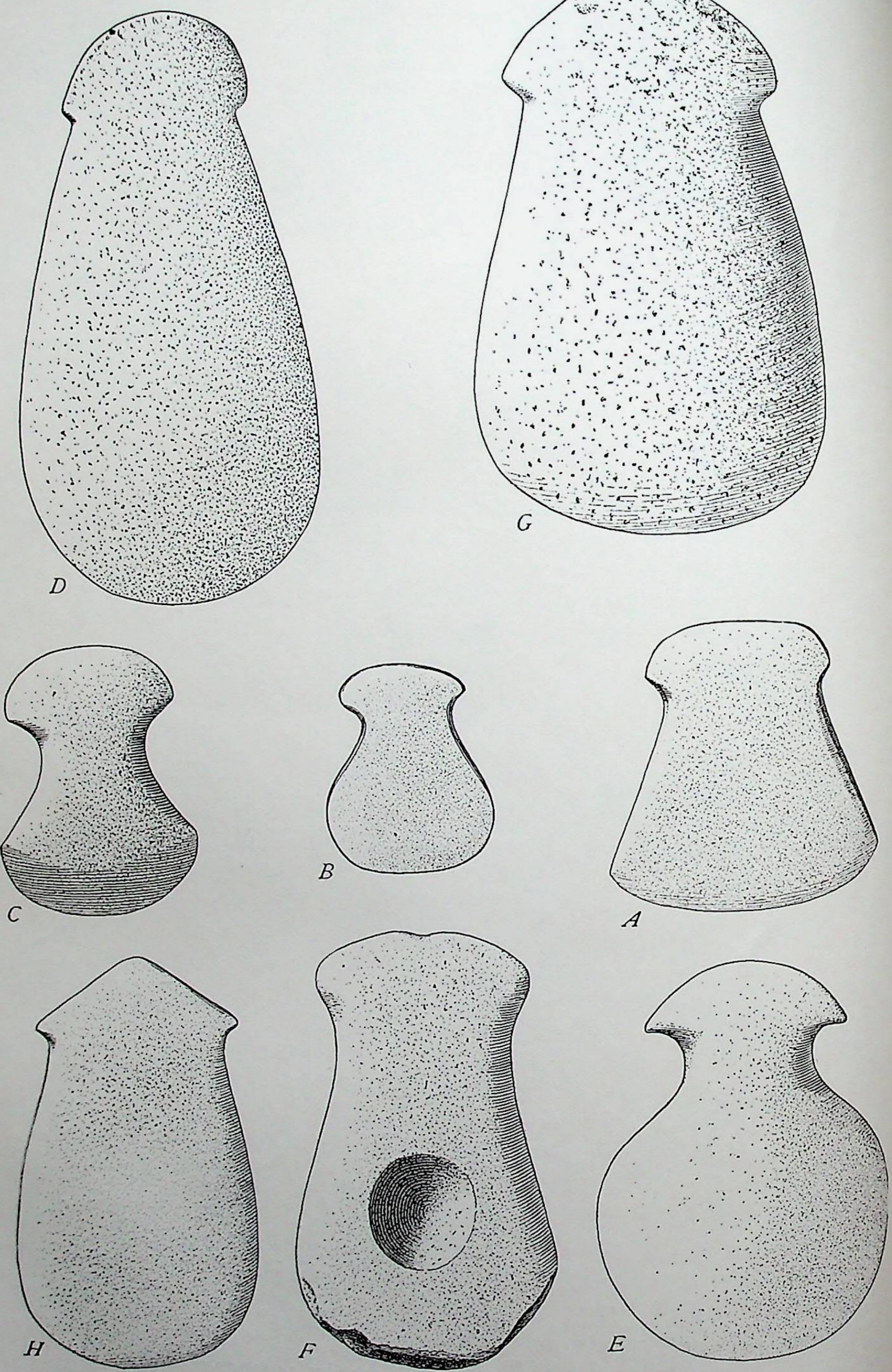
STONE IMPLEMENTS FROM ST. VINCENT

G, 5.38 inches: *J*, 6 inches.



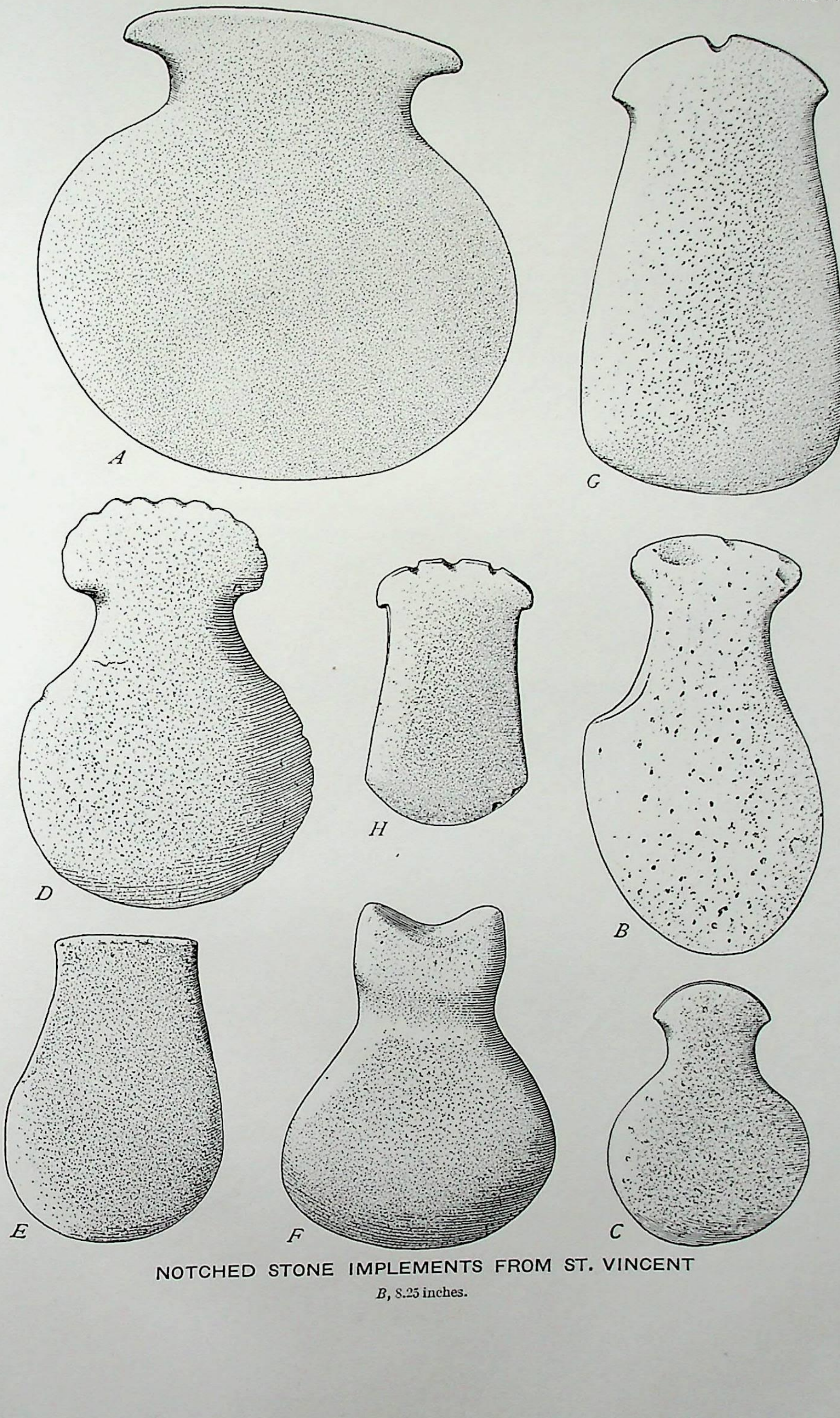
STONE IMPLEMENTS FROM ST. VINCENT

F, 2.88 inches; *H*, 2.25 inches; *J*, 4.75 inches.



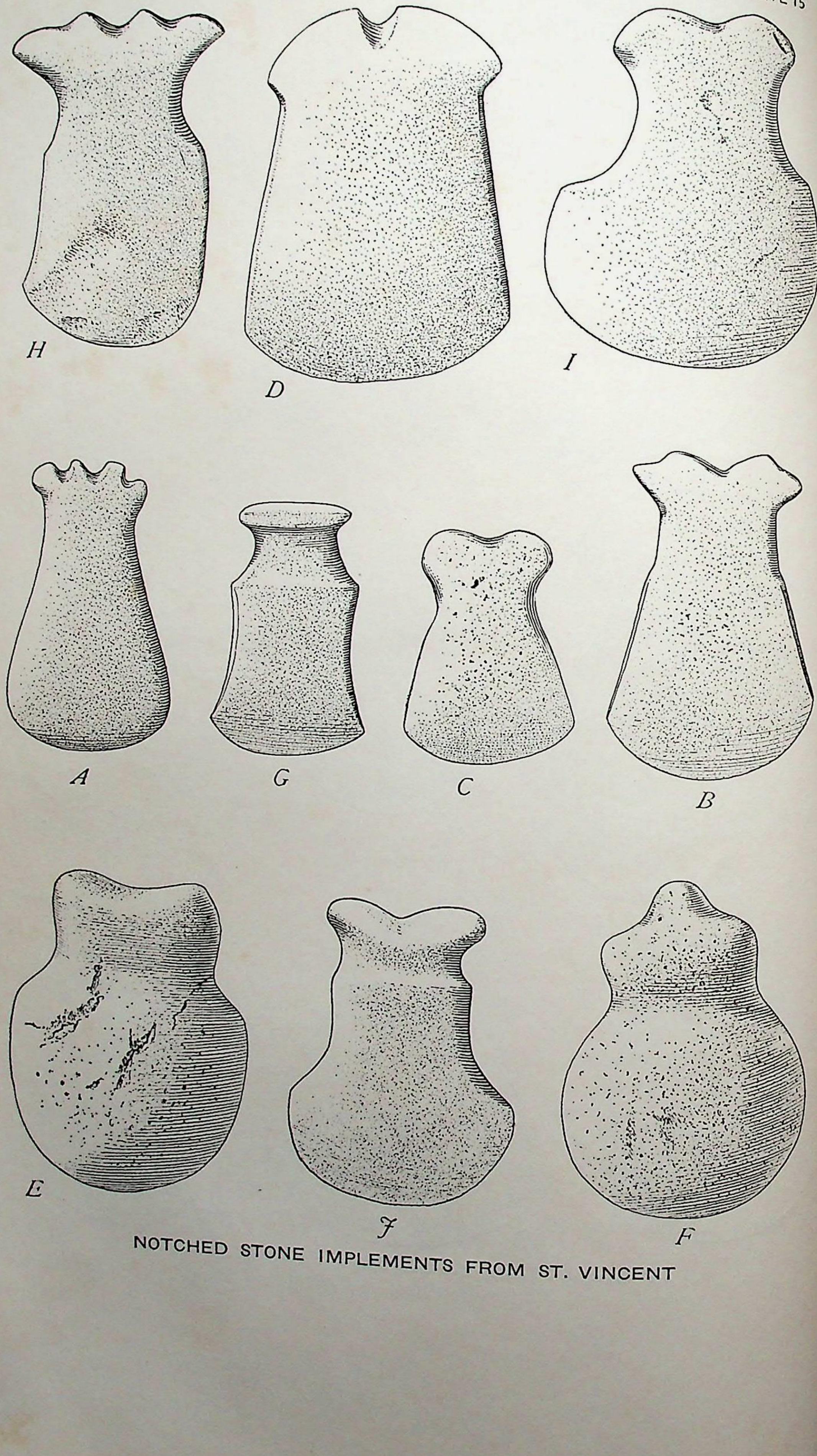
NOTCHED STONE IMPLEMENTS FROM ST. VINCENT

F, 7.5 inches.



NOTCHED STONE IMPLEMENTS FROM ST. VINCENT

B, 8.25 inches.



NOTCHED STONE IMPLEMENTS FROM ST. VINCENT

There is the same relative predominance in size of the shaft over the head in this as in previous specimens, while the form and the relatively greater width of the shaft is shown in the specimen figured in plate 13, *G*. In plate 13, *H*, the head is more sharply pointed than the others, but their general form is identical.

The head of the circular implement, plate 14, *A*, is narrower than the blade and separated from it by symmetrical marginal indentations, presenting one of the best-known examples of a type which has comparatively few members. Plate 14, *B*, *C*, *D*, *E*, are provisionally placed in this group, although in plate 14, *E*, there is a pronounced want of symmetry in the two sides.

The features separating plate 14, *E*, *F*, from the different members of the eared type are small, mainly specific rather than generic. Plate 14, *G*, representing a typical notched-edge ax, unlike most of the specimens thus far referred to, has a cutting edge. The essential feature of an ax the head of which is notched at the edges is shown in plate 14, *D*, and its relatively greater breadth of head compared to the shaft is evident from the illustration.

The implement represented in plate 14, *F*, has a deep groove in the head and a shallow indentation on each margin. The former is deep and broad, whereas in plate 14, *G*, where it again occurs, it is small and semicircular in form.

The single notch on the head of plate 14, *G*, is replaced by three notches in plate 14, *H*, which is unique in this particular feature. These grooves become quite deep in plate 15, *A*, while in plate 15, *B*, the median groove of the head is more pronounced than the two lateral ones. In plate 15, *C*, *D*, *E*, there is a return to a tendency to a groove separating the head of the ax from the blade or a hafting for a handle.

The tendency to introduce a groove between the head and blade of the ax appears also in plate 15, *E*, *F*, whose margin, as seen in profile, becomes a waved line with alternate projections and furrows, the latter most strongly marked on the head. The margin of the ax becomes rectangular in one specimen, shown in plate 15, *G*; there are furrows cut on the head of plate 15, *H*, *I*. Figures *H* and *I* must be classified as aberrant forms of a type differing from the stone implements with indented edges, but having common features which justify their being provisionally placed in this group.

In considering the shapes of plate 16, *A*, *B*, we are reminded of the forms of bronze axes so common in the Old World. They have the same symmetrical form and the sharp edge, showing that they are implements used in cutting.

The implement shown in plate 16, *D*, is dumb-bell shaped, when seen in profile, and has a median groove, the two halves being about uniform in size.

In the object shown in plate 16, *E*, one half is larger than the other, suggesting a head and blade. There is, however, no encircling groove.

In plate 16, *C*, *F*, there is an approach to an encircling groove and a head distinct from the blade. The top of the head of *E* is indented and the right side flattened, perhaps broken.

Plate 16, *G*, represents a similar implement with two bevels on the head, which impart a triangular shape to this region of the implement when seen in profile.

The head in plate 16, *H*, is rectangular and extended; in plate 16, *I*, it is concave on the top.

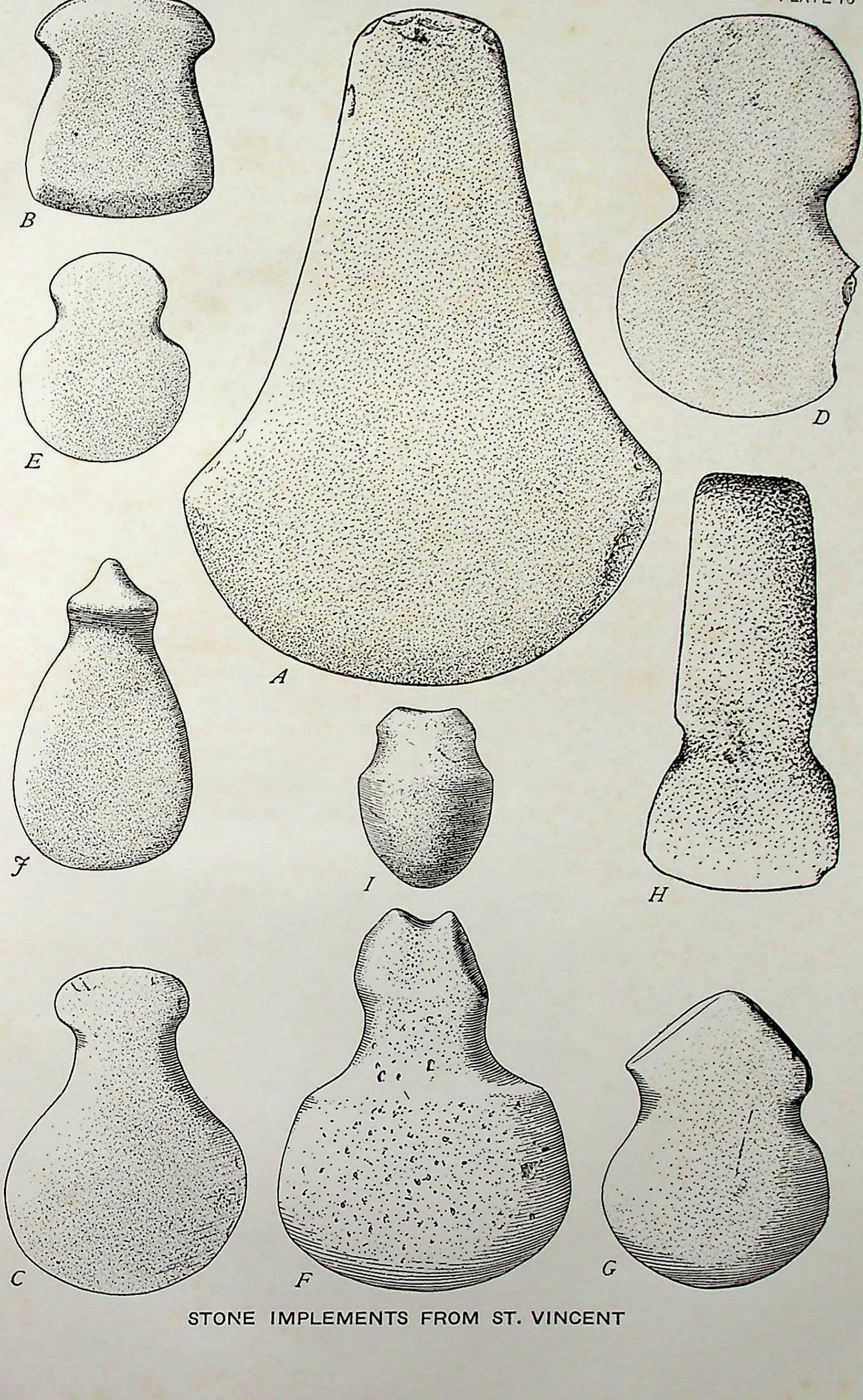
In plate 17, *A*, the head has a point on the apex, the outline of the blade being circular. The implement, plate 17, *B*, has a ferrule near the head extremity, the apex being flattened, and in plate 17, *C*, the apex is concave. Plate 17, *D*, has a broad, flat apex, which in plate 17, *E*, is incurved, forming earlike extensions.

AXES WITH CAPS

There are in the Heye collection several specimens which, when seen in profile, resemble a petaloid celt with a cap perched on the pointed extremity. The rim of this cap seen on the margin overhangs the surface of the blade, forming a low ridge, which is the upper rim of the groove, by which probably the handle was prevented from slipping over the pointed head of the ax. The simplest form of this type, shown in plate 17, *F*, has, in addition to the cap, a secondary groove situated just below it. Another form of head is shown in plate 17, *G*. In plate 17, *H*, there are indications of two similar supplemental encircling grooves, pronounced on the margins as notches. In this specimen the top of the head has become more or less flattened and slightly rounded, its end being cut off so that it is parallel with the groove, instead of being continued into a point. A like feature appears on the side of the ax, plate 17, *I*, where there are indications of three supplementary notches, parallel to each other on the flat caplike structure on the end of the implement. There was probably still another notch in that portion of the head which is now broken off.

In plate 18, *A*, we have a typical form of ax without cap, but with head broad; one edge straight, the other curved.

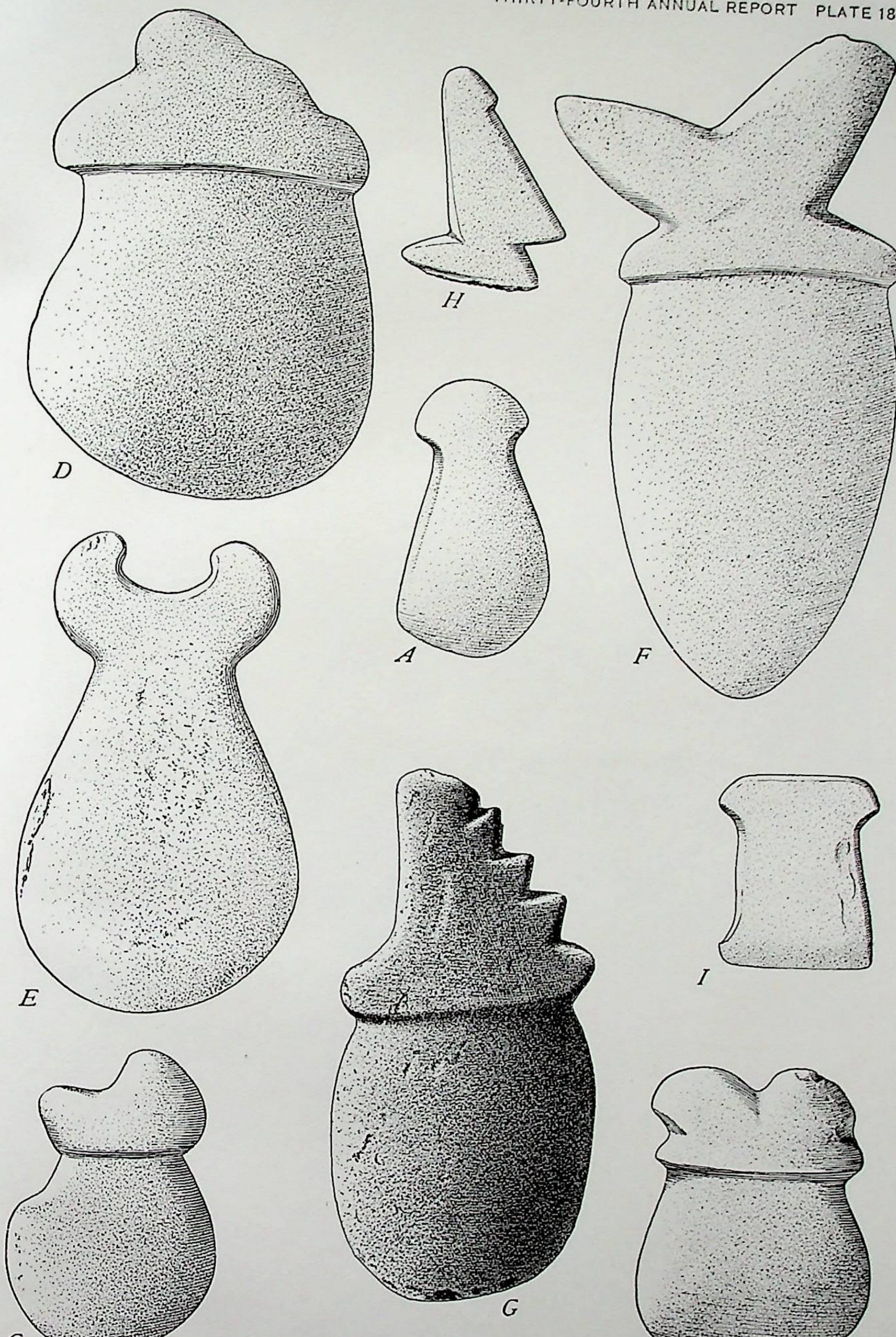
The apical cap of plate 18, *B*, is more globular in form than the last, and is separated into two regions by an apical furrow, absent in plate 18, *A*. While the blade of this ax is destitute of the symmetry ordinarily found in this type, the groove of the handle forms a true caplike head, a distinctive feature of the group. The



STONE IMPLEMENTS FROM ST. VINCENT

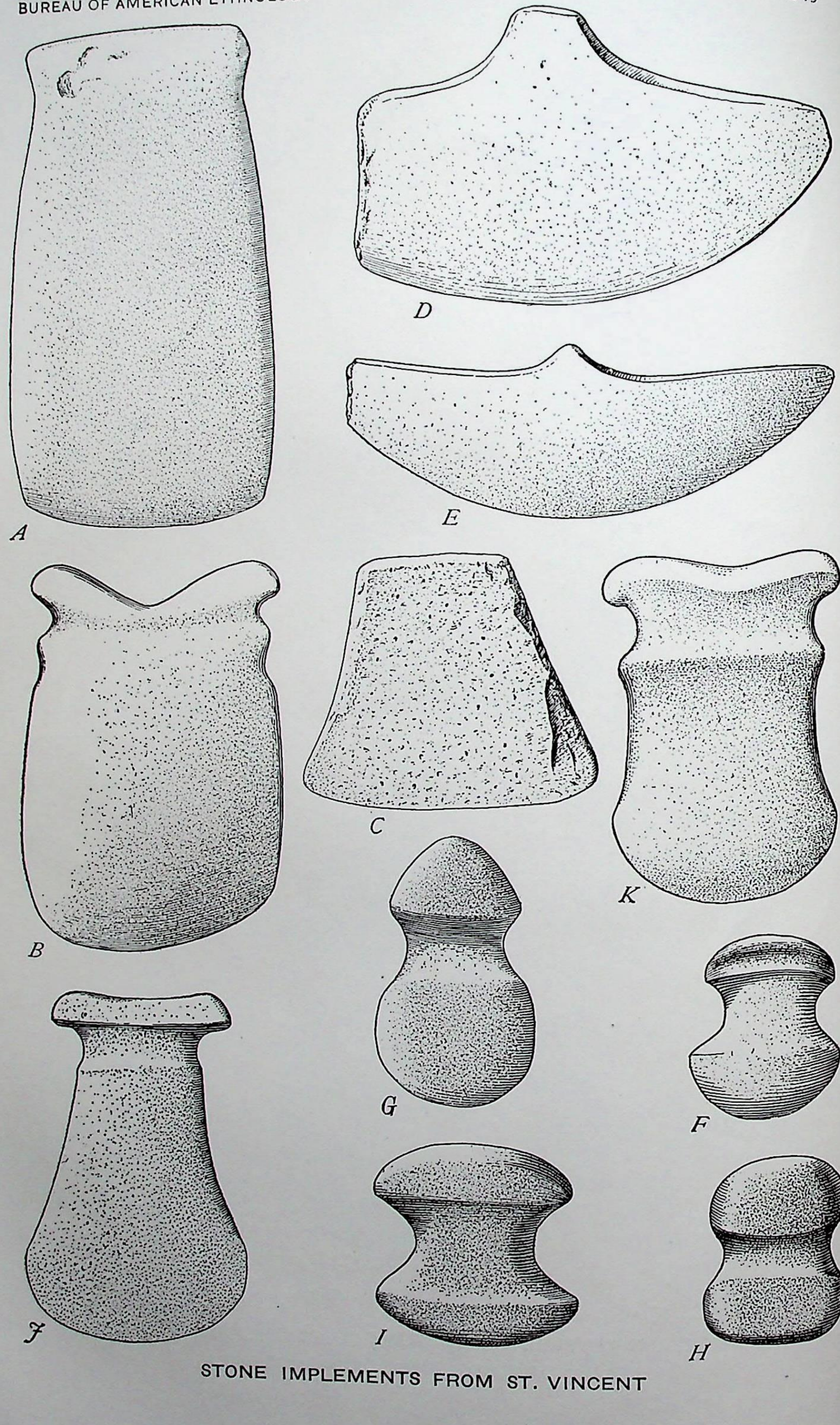


STONE IMPLEMENTS FROM ST. VINCENT



FISH TAIL AND ASYMMETRICAL STONE OBJECTS FROM ST. VINCENT

C, 5 inches; *E*, 8 inches; *F*, 2.5 inches; *G*, 9.13 inches; *H*, 4 inches.

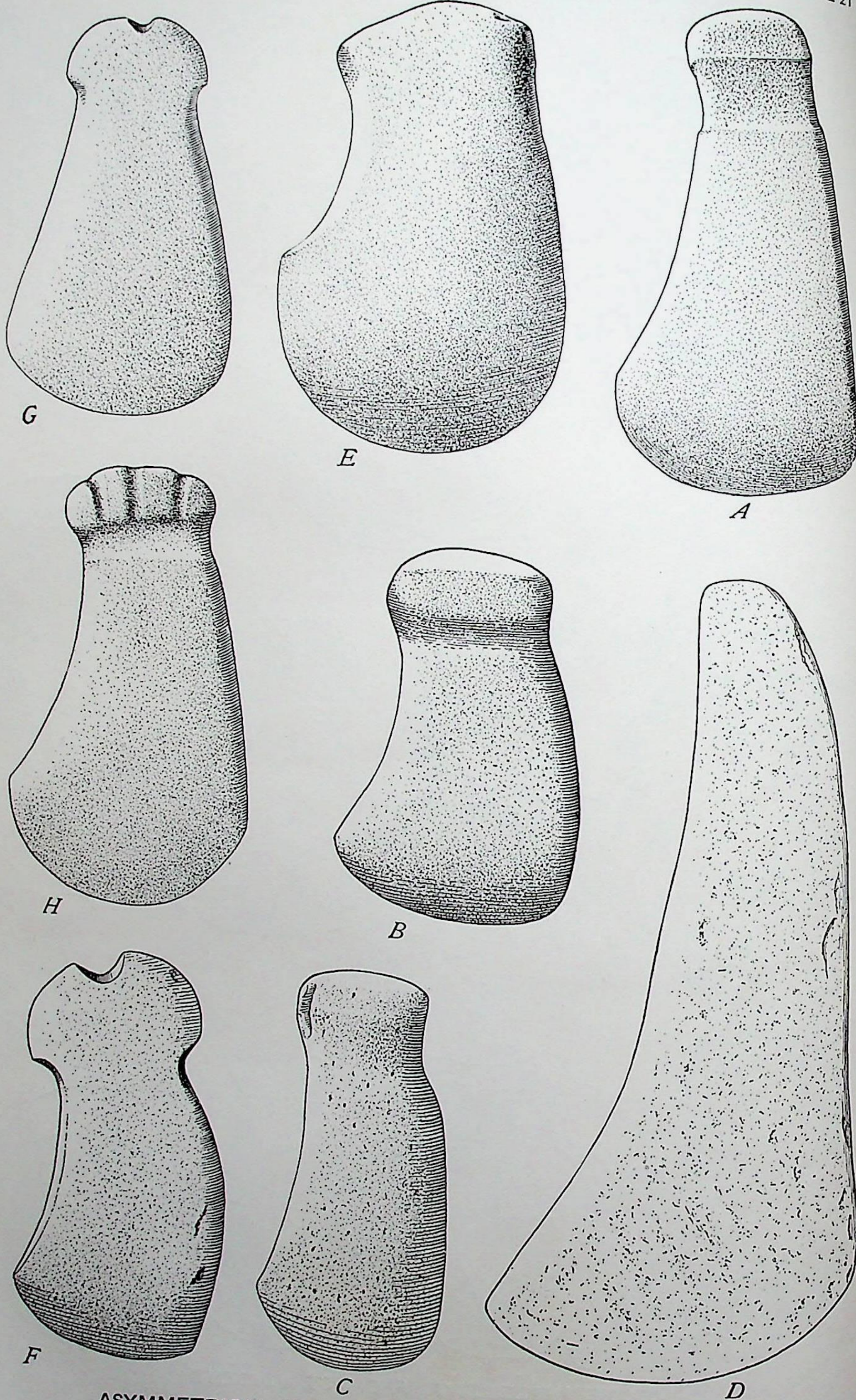


STONE IMPLEMENTS FROM ST. VINCENT



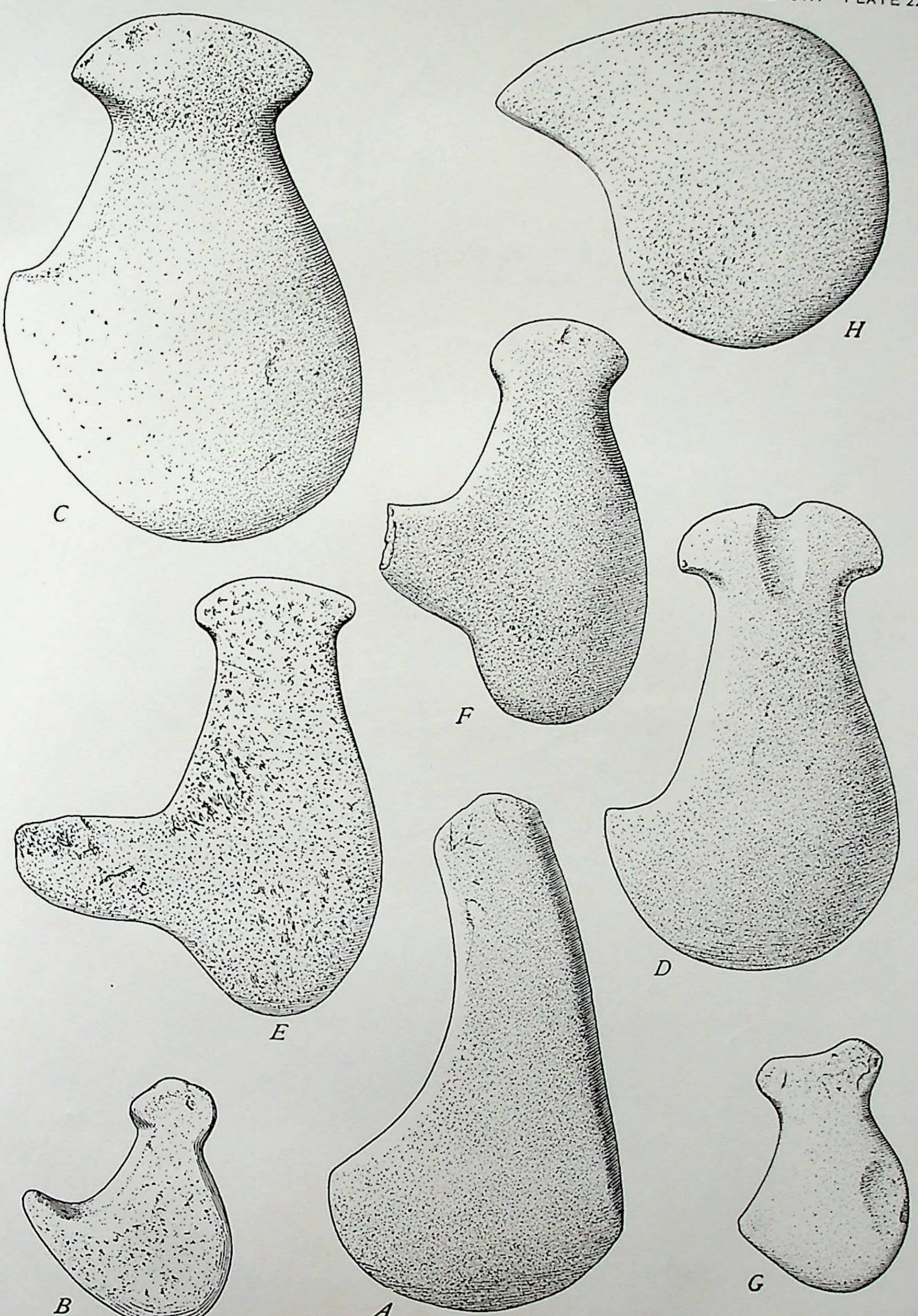
STONE IMPLEMENTS FROM ST. VINCENT

B, 7.75 inches; *C*, 8.44 inches; *E*, 6 inches; *J*, 5.25 inches; *L*, 5.5 inches.



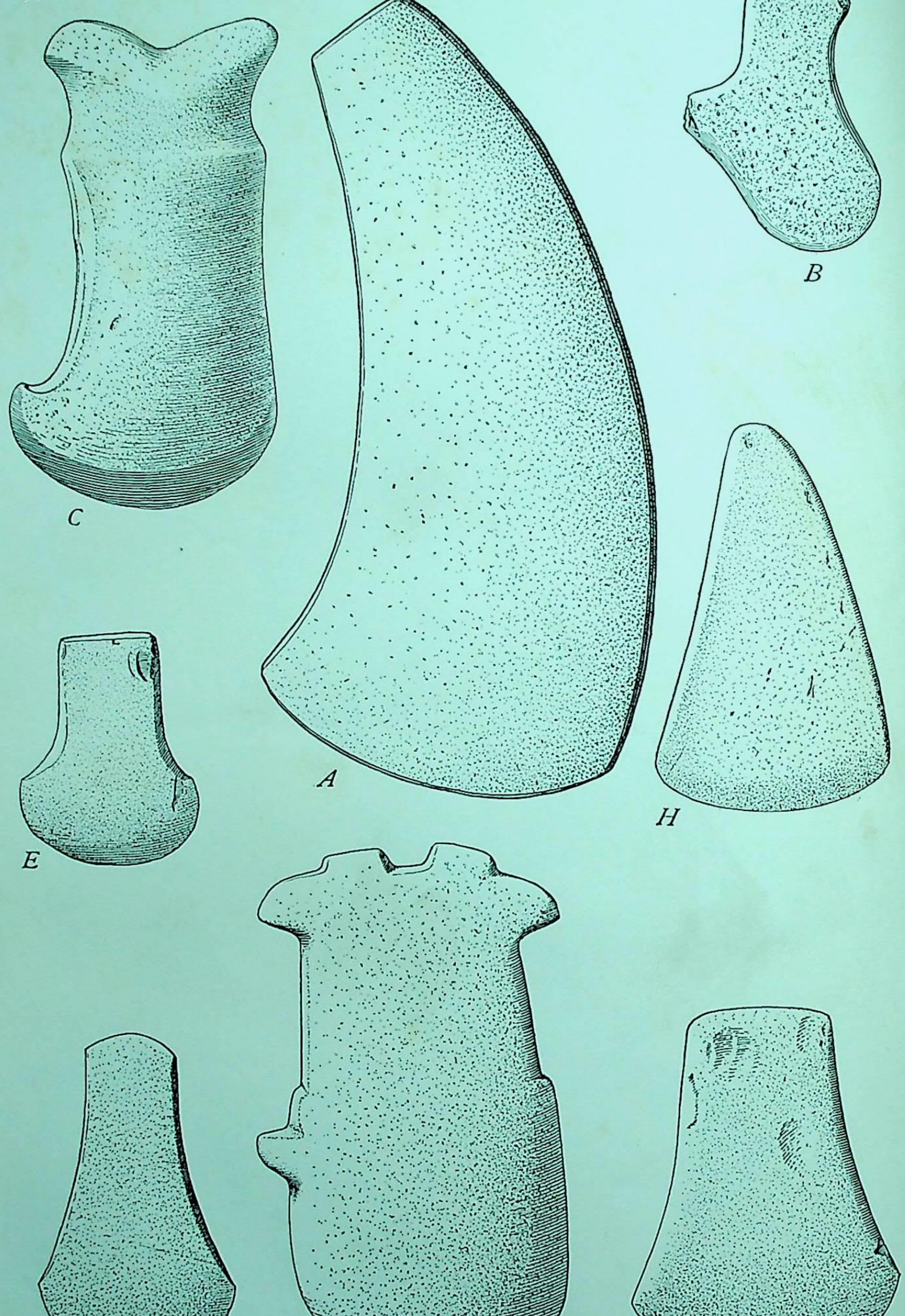
ASYMMETRICAL STONE IMPLEMENTS FROM ST. VINCENT

B, 4.38 inches; *C*, 6.63 inches; *F*, 6.5 inches; *H*, 7 inches.



ASYMMETRICAL STONE IMPLEMENTS FROM ST. VINCENT

A, 9 inches; *B*, 4.3 inches; *D*, 8 inches; *E*, 7.6 inches; *F*, 7 inches; *G*, 4.38 inches; *H*, 7.25 inches.



ASYMMETRICAL STONE IMPLEMENTS FROM ST. VINCENT

A, 9.25 inches; *C*, 6.75 inches; *D*, 7.5 inches; *E*, 3.88 inches; *F*, 5.5 inches.

cap of plate 18, *C*, has its apex not symmetrical but turned to one side. A similar absence of symmetry likewise appears in the margins of the blade, which are convex on one side and straight or slightly concave on the other. The cap of plate 18, *D*, has two apical furrows dividing the head into unequal lobes.

Two specimens in which the apical furrow has become so deep that two extended lobes have elongated into horns or ears are figured in plate 18, *E*, *F*. In figure *F*, these ears assume a fishtail form, and in *E* the lobes are curved, distinctly resembling the ears of a rabbit.

The head of an ax of the cap type, shown in plate 18, *G*, has a notched or serrated rim, the sawlike margin appearing especially pronounced on the right side, imparting to the whole implement a conical or triangular form when seen in profile.

Plate 18, *H*, represents another ax of the same type, the head being broken and the blade missing. In essential features the cap of this implement recalls that of plate 18, *G*, from which, however, it differs in dimensions and number of notches, the workmanship on it being so coarse that it appears to be an unfinished specimen. We repeatedly find similar implements of this form in caches brought to light by construction of roads across the island or by inroads of the sea on exposed coasts. It appears that the natives blocked out these implements and stored them for future use or for barter with those who lived on islands where there was no stone adapted to the manufacture of implements.

Plate 18, *I*, is an unidentified stone implement of rectangular shape.

Plate 19, *A*, is a rectangular ax with sharpened edge; plate 19, *C*, represents an ax of simple form; but the blade, plate 19, *B*, is not unlike a modern ax in shape.

It is not possible to identify the use of the implements shown in plate 19, *D*, *E*, but it is supposed that they once had handles.

GROOVED HAMMERS AND AXES

Four stone hammers from the Heye collection, shown in plate 19, *F–I*, represent typical forms of these implements from the Lesser Antilles. In their general outlines they correspond closely with those of Porto Rico, all being deeply grooved for hafting, rounded above and below. They were evidently battering or pounding implements. From the depth of the groove it is evident that a wooden handle was formerly firmly lashed to them, either tied by cords or bent around their body, filling the encircling groove, which insured its attachment.

The shape of the hammer shown in plate 19, *G*, approaches the form of an ax, its deep groove and slightly projecting cutting edge flaring. The groove in plate 19, *H–K*, is pronounced, evidently for the attachment of a handle. A marked feature of ax *J* is the flat head, which, as shown in the accompanying figure, also has angular projections.

Plate 20, *A*, has two lateral birdlike projections on the top of the head, but the groove for hafting is less pronounced than in the preceding. Plate 20, *B*, *C*, represent grooved axes with prolonged extensions on the tops of their heads, where there are also notches. The extent of the prolongation of the head is here so great that we can hardly suppose that the notch played any great part in lashing the blade to its handle.

The groove of an ax in the Heye collection, represented in plate 20, *D*, is well marked and the beginning of the differentiation of a blade or body from the shaft is apparent.

The implement figured in plate 20, *E*, has the sides of the head prolonged into two projections, like horns or ears. Its head is separated from the rest of the implement by a well-marked groove, the body being divided into a clearly defined shaft and blade. In plate 20, *F*, the head has been reduced to a low narrow ridge above the encircling groove, there being in this specimen no line of demarcation between shaft and blade, while in that shown in plate 20, *G*, there are rectangular elevations on the head, which is perforated. This object shows no want of symmetry on its two margins. The differentiation of shaft and blade is quite evident in plate 20, *H*. The head furrow is here less pronounced than in *G*, where the groove is deep and has about the same breadth all around the implement.

The grooved ax, plate 20, *I*, is well made, showing head in profile with ridges curving on the groove. The body, or the blade, is crescentic in form, and its upper diameter is about equal to that of the head, but less than that of the shaft, which broadens somewhat below the groove. The margins of the shaft are angular. In the middle of the side of this specimen a pit has been sunk in the surface, and there is still another such depression situated on the top of the head, both recalling the notches in previous specimens.

ASYMMETRICAL AXES

Axes with or without grooves for hafting, but with an extension on one edge imparting to them an asymmetrical form, are quite common in the St. Vincent-Grenada area. In its simplest form (pl. 20, *K*, *L*) this want of symmetry is not very pronounced, consisting of a slight projection on the side, almost imperceptible without close examination. From this we pass through intermediate forms to those

at the other end of a series in which the lateral projection has developed to such an extent that it has completely modified the form of the ax.

One of the simplest of these asymmetrical axes in the Heye collection is represented in plate 21, *A*. The want of symmetry in this specimen appears in the left border, the right margin of the ax, when placed in a normal position, being simply curved, the left slightly pointed.

In the next illustration, plate 21, *B*, representing a somewhat more developed ax, the asymmetry of the left margin is more pronounced and indicated by a marked projection. Plate 21, *C*, has this feature still more developed, for in this specimen the right margin is almost straight, while the left is curved inward, terminating in a projection. Unlike the preceding, the specimen *A* is girt by a well-marked encircling groove for hafting, which, combined with the other features, imparts to it the conventional tomahawk form. Except that it is relatively longer and narrower, the specimen represented in plate 21, *C*, is not unlike that shown in plate 21, *A*. The asymmetrical feature is well marked in this, and also in those represented in plate 21, *D*, *E*, although in the last mentioned all sign of a groove for hafting is absent.

While the ax, plate 21, *F*, belongs to the same type as those described above, the shape of its head is somewhat different. Here we have a groove on the top of the head, evidently designed for lashing the ax to a handle. The same general outline exists likewise in plate 21, *H*, but in this specimen the single groove on the head is replaced by three, and the groove encircling the head of the ax and separating it from the body is more pronounced. Plate 21, *G*, has a groove on the head for attachment of a handle.

The specimens thus far mentioned have an enlargement at the end of the shaft forming a head. Not so, however, the next specimen represented in plate 22, *A*, where the shaft simply tapers to the end and is bent backward, forming a distinct curve, bringing the projection on one side of the ax at the extreme left end of the cutting edge of the blade. In the next specimen, plate 22, *B*, this extension has become still more prominent, for although the pointed end of the blade has become somewhat enlarged, the projection imparting the asymmetrical form almost equals that of the ax in length.

This lateral extension of the left margin of the ax has thus far been confined to the lower end or the middle of the implement, but in plate 22, *C*, *D*, it has shifted its position and is here found near the middle. The result is that the cutting edge of the ax has been extended on one side, whereas in the preceding specimens the length of the cutting edge is about equal on each side of a median line.

The lateral extension which imparts the asymmetry to these axes has been abnormally developed in plate 22, *E*, and would have been still further extended in the specimen, plate 22, *F*, were this specimen entire.

Closely connected with the asymmetrical blades already mentioned are a few of somewhat aberrant form which have the same peculiarities, but are modified in a somewhat different manner. Among these may be mentioned plate 22, *G*.

Plates 22, *H*, and 23, *A*, *B*, represent other aberrant forms of implements, each of which have pecularities, but all evidently belong to the same type as the above. Of these specimens, that represented in plate 23, *B*, departs so much from the normal form that we may well doubt whether or not it belongs to the group. Its outline is, however, asymmetrical.

The ax, plate 23, *C*, is regarded as one of the best made of the asymmetrical type, for not only is its cutting edge continued into a projection on the left side but its termination is turned upward, imparting a characteristic form to the head and body of the blade. Instead of being rounded, as on the right edge, three planes are cut on the left margin, one in the middle and one on each side, forming a kind of chamfering which differentiates it from the axes previously mentioned.

In plate 23, *D*, both the right and left margins, instead of being rounded, are bounded by flat planes, imparting to the two sides of the blade, as seen in profile, very different outlines. The extension on the left margin is exceptional.

A somewhat similar difference can be seen in an implement found in the Berlin Museum, in which this difference in the two margins is even more marked than in any other asymmetrical ax. It represents an implement allied on one side to the asymmetrical forms and on the other to those with projections on the head, features so marked that we may consider it a connecting link between those characterized by these two peculiarities.

Tools

The variety of shapes assumed by stone tools in the St. Vincent-Grenada area appears in the following figures, one of the most perfect forms of which is that represented in plate 23, *G*. Here the borders of the shaft are angular and the cutting edge is curved and sharp. The size of this specimen, or more especially the angular character of the border of the shaft, points to the probability that it formerly had a handle which may have been attached to it longitudinally, or it may have been inserted in the end of the handle like a chisel. The implement shown in plate 23, *F*, is one of the most effective cutting tools yet described from the Antilles. The margins are angular

and both the upper end and terminal edges are sharpened. It is the author's belief that this stone implement was inserted in a slit formed in the extremity of a handle and firmly bound in place by cords. Forms similar to the last mentioned are shown in *G* and *E*, which are broader than the last and sharpened at the end. There is a want of symmetry in the two margins of *H*, the left being shorter than the right. The end opposite the cutting edge is here pointed like a petaloid stone.

The common form of tool is shown in plate 23, *F*, *G*, *H*, in which we recognize the contracted shaft, which was probably fitted to a handle, and the more or less curved edge.

We have in plate 24, *A*, *B*, tool-formed implements in which the two sides of the shaft are not convex, as is usually the case, but are slightly concave when seen in profile. The profile of plate 24, *B*, would probably have been a complete triangle but for the fact that one point has been broken. The curved side of this triangle is sharpened and probably served as the cutting edge of an implement. The implement *C* is such that it could readily serve as a spear point, but it may have been used as a gouge for cutting wood previously charred or otherwise softened by fire—a custom ascribed to Carib when they cut down trees or dug out cavities in logs for canoes. It is said that in making canoes they first burned a hollow in a log with live coals and then scraped it out with stone chisels, and some of the stone implements we are now considering may have been used in the way indicated.

The form of plate 24, *D*, is almost rectangular when seen in profile, although there is a slight difference in width of the butt and cutting edge. In the implement shown in plate 24, *E*, a handle has been formed by a contraction of the diameter above the end. The same reduction in size occurs in plate 24, *F*, but in it the handle is somewhat shorter and the cutting edge has a circular form.

The implement represented in plate 24, *G*, is a good tool with square margins, tapering uniformly and slightly curved, making it a most effective cutting tool.

These chisels are sometimes elongated in form, as shown in the specimen in plate 24, *I*. This otherwise perfect implement is unfortunately slightly chipped on the cutting edge, but it is sharp and not too thick. The handle is round, terminating in a blunt point. Like the preceding, it shows evidences of having been formerly tied by its short handle to a stick or stave to increase its effectiveness. The object shown in plate 24, *H*, is problematical.

The tendency in all these tools is to become pointed at one extremity, as in plate 25, *A*, *B*, *C*, and to become broader at the opposite end, imparting a well-marked spatulate form.

The broad cutting edge of plate 26, *A*, is slightly curved but sharp, although the shaft tends to be angular on each margin. The finest examples of a beveled cutting edge occur in plate 26, *A*, *D–L*. These tools are angular and elongated in shape, of about uniform size throughout their length, their thickness being about one-fifth of their breadth. The butt, when seen from one extremity, has a rectangular form and the cross section throughout its length is uniform. The use of stone objects represented in plate 26, *B*, *C*, is problematical.

In plate 26, *G*, we have represented an angular implement, sharpened but not beveled at its cutting extremity, and squarely formed at the opposite end.

In plate 26, *H*, we find the tendency to angular edges very pronounced, and in plate 26, *I*, *J*, the same figure is evident, although the implement is much elongated and tapers slightly to each end.

In plate 26, *K*, the cutting edge is almost straight, but the ax shown in plate 26, *L*, is slightly curved, its two margins rounded rather than angular, and the tip blunt.

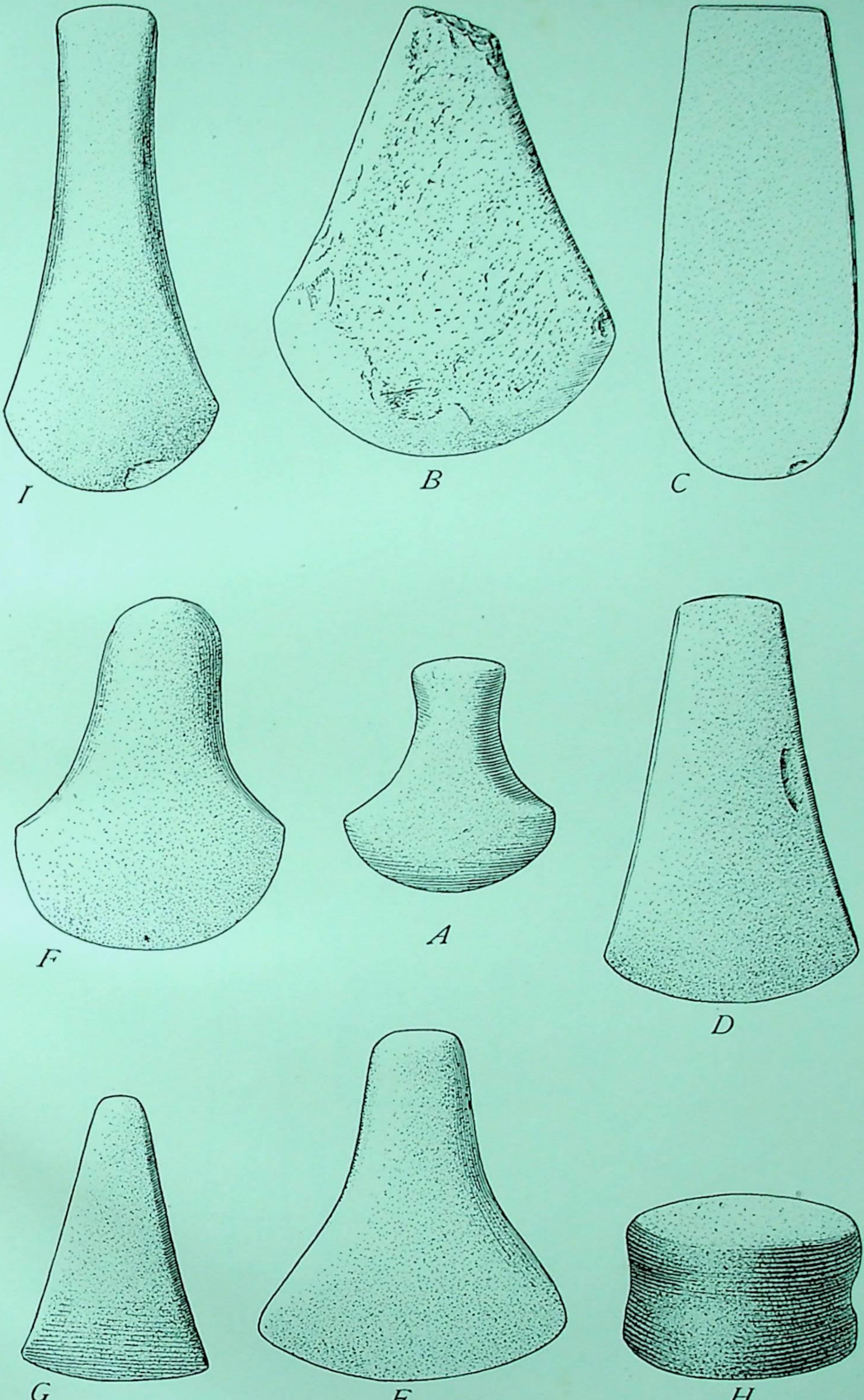
Plate 27, *A*, *B*, may be regarded as tools of typical forms, and in plate 27, *C*, we have an approach to the chisel form which often occurs in all collections from different West Indian islands. Plate 27, *D*, represents a tool, the cross section of which is square, the edge sharpened, and the tip flat. A similarly formed chisel is shown in plate 27, *E*, the same type, almost square in profile, appearing in plate 27, *F*. The chisel, plate 27, *G*, is beveled on two opposite sides, diminishing to a point at the opposite extremity. The specimens represented in plate 27, *H*, *I*, are tools of the types mentioned, whose forms are somewhat modified in detail, but still preserve the same general features.

The implements shown in plate 28, *A*, *B*, have been designated chisels, and are probably, more strictly speaking, forms of cutting implements, rather than celts or weapons.

In plate 28, *C*, *D*, *E*, we have different forms of stone cutting implements, cleaver shape, but with slight projections on the head, on each side of a median notch. Although their outlines vary considerably they preserve the same general form, usually having a cutting edge.

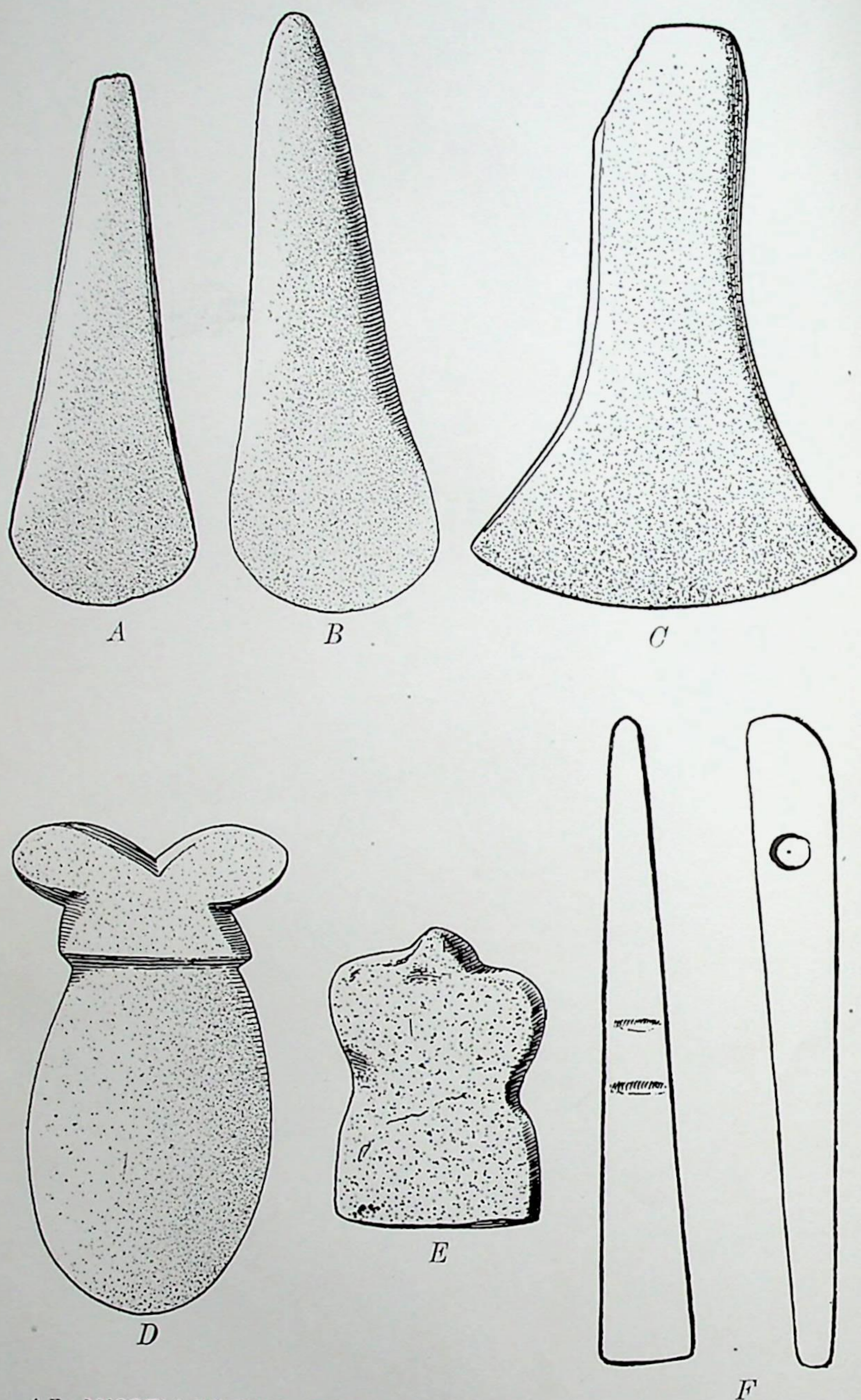
Plate 28, *F*, from the Berlin Museum, is noteworthy on account of the relative sizes of the head and blade.

A modification in the cutting edge is introduced in the two tools represented in plate 28, *G*, *H*; the angle to the axis of the implement is slight in *G*, but more acute in *H*. Plate 28, *I*, shows a passage from this type into the grooved implement shown in this specimen, while plate 28, *J*, *K*, *L*, are tools having the same form, but made of shell. These implements are not as common as those of stone and



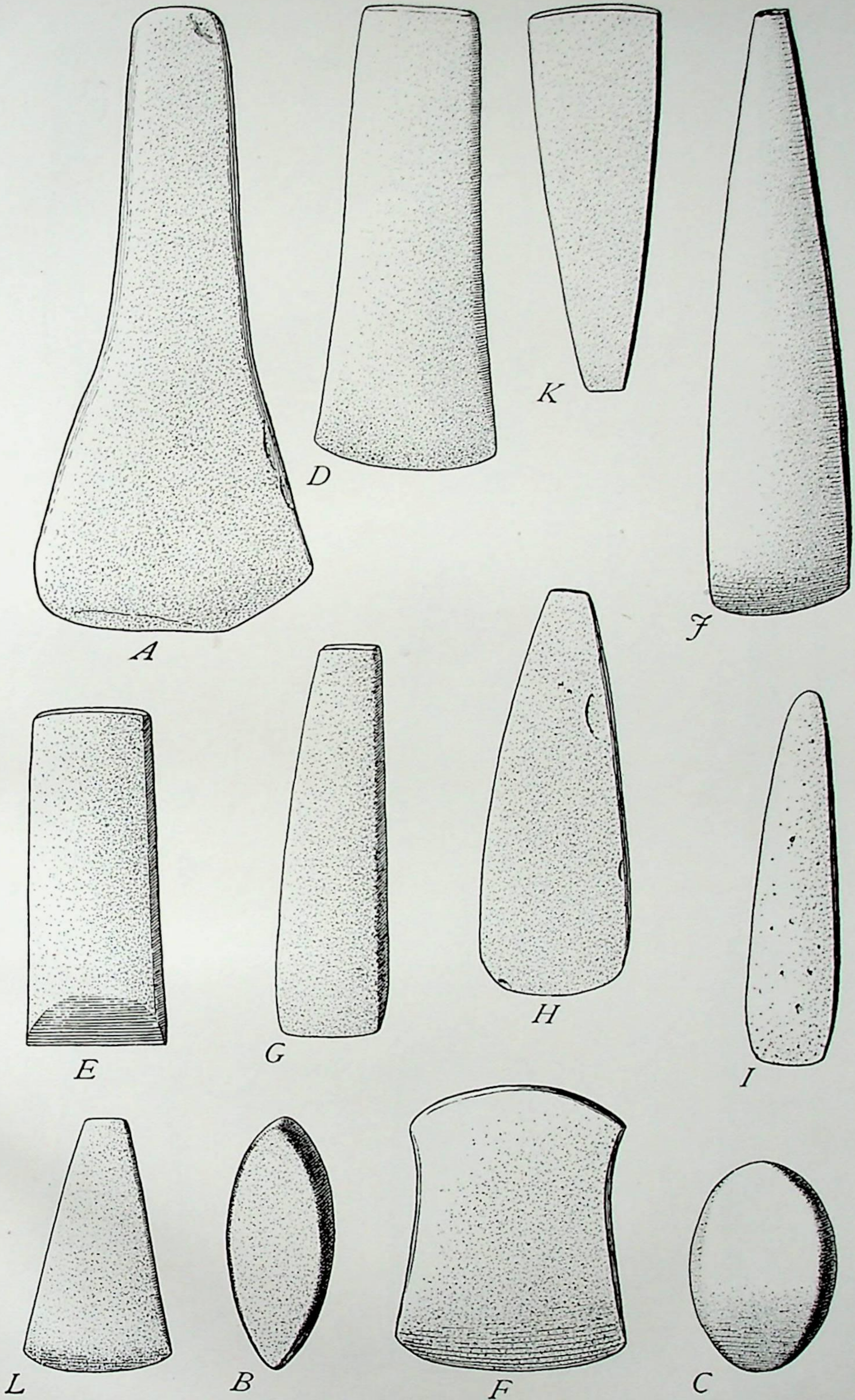
SPATULATE STONE IMPLEMENTS FROM ST. VINCENT

A, 3.88 inches; *H*, 2 inches.

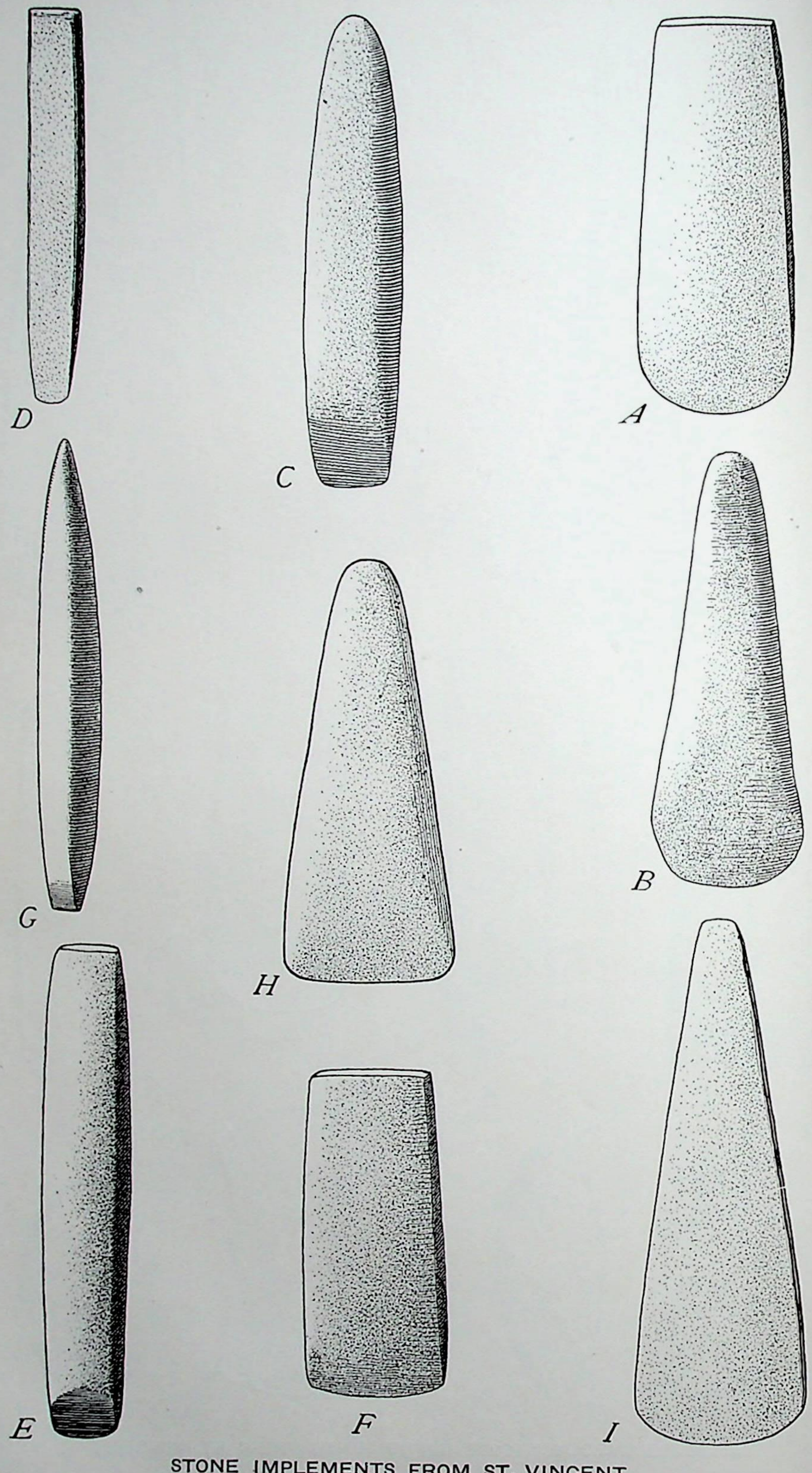


A-E, MISCELLANEOUS STONE IMPLEMENTS FROM ST. VINCENT.
F, PENDANT FOR NECKLACE

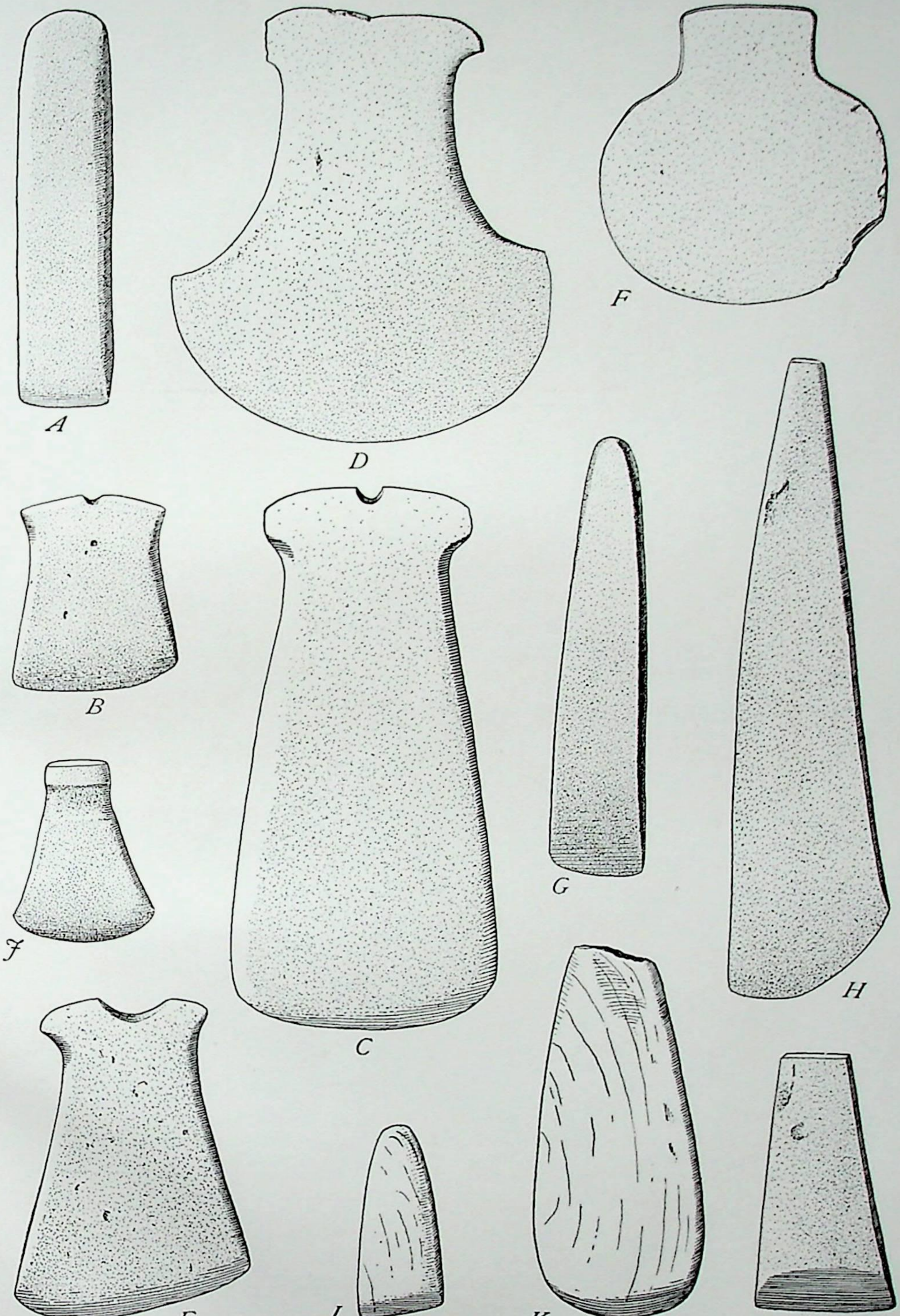
A, 5.25 inches; *F*, 2.5 inches.



MISCELLANEOUS STONE IMPLEMENTS FROM ST. VINCENT

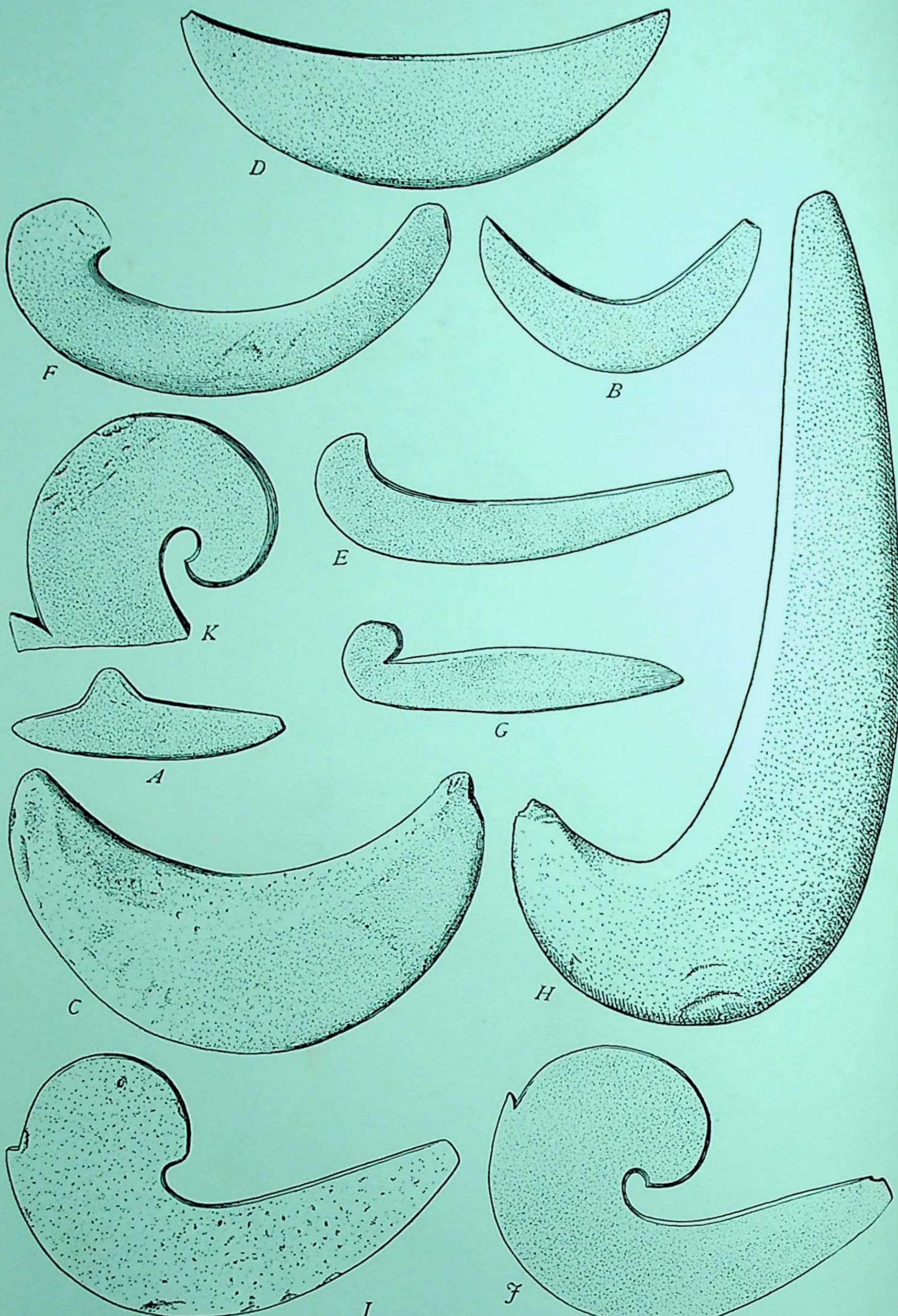


STONE IMPLEMENTS FROM ST. VINCENT



STONE IMPLEMENTS FROM ST. VINCENT

F, 5 inches.



CRESCENTIC STONE IMPLEMENTS FROM ST. VINCENT

A, 5.5 inches; *B*, 5 inches; *C*, 9.5 inches; *D*, 9.5 inches; *E*, 8 inches; *F*, 9 inches; *G*, 6.38 inches; *H*, 7.25 inches; *I*, 7.5 inches; *J*, 9 inches; *K*, 6 inches.

are rarely collected on the island of St. Vincent. Shell was the only hard substance available in Barbados for the manufacture of cutting implements, and axes made of this material occur in great abundance.

Implements of Crescentic Form

Certain crescentic stones, called sacrificial knives,[65] generally convex on one edge and concave on the other, commonly sharpened on one point, are among the best found in St. Vincent. These assume a variety of modifications, well illustrated by specimens in the Heye collection. Although the majority of these forms were found in St. Vincent and Grenada, the type is not limited to these islands. The simplest forms of sacrificial knives are shown in plate 29, *A*, *B*, *C*. The crescentic shape is somewhat modified in *A*, and a projection which may have served as a handle arises from the concave edge. It is popularly believed that these curved implements are knives used in cutting out the hearts of victims in human sacrifices, and following out this erroneous idea certain large bowlders bearing pictographs are called altar stones.

These crescentic implements are commonly sharp at one point and blunt at the opposite. They may have been used in cutting fish, meat, or even human bodies, suggesting sacrificial knives. They are commonly flat at two opposite sides, rounded, often blunt on the edges, but they almost invariably terminate in a cutting edge or a sharp point. Their shape varies from a slightly crescent form to the spiral; sometimes their handles are straight prolongations, terminating in a curved extremity. No historic authority can be quoted from accounts of the aborigines of the West Indies that they sacrificed human beings, but there is abundant proof that they removed flesh from the skeletons of the dead, even their own relatives, in their mortuary ceremonies.

Various other forms of sacrificial or ceremonial knives are figured in the series represented in plate 29. One of these, plate 29, *C*, has a semicircular cutting edge like the skin scrapers manufactured by some of the North American Indians. Figure *G* represents a most instructive type, in which the implement is en-

[65] The crescentic form of stone implement, locally called sacrificial knives, is not very common in St. Vincent, but a few fine specimens are known to exist. (See author's picture of pictographs on a large bowlder in 25th Ann. Rept. Bur. Amer. Ethn., pl. lxii, upper fig.) The best known of these is owned by Mr. Patrick Huggins, an old resident of this island, whose ancestors he affirms received it from a "Carib chief," who said it had been used for sacrificial purposes. Local collectors in St. Vincent are accustomed to call stones bearing pictographs "jumbi" stones or altars, and they say that sacrifices of human beings were made on these altars with stone implements of crescentic form, but none of the early contemporary accounts support this statement. The crescentic type may be the curved knives mentioned by Labat as the instruments with which the flesh of men devoured in cannibal feasts was cut into pieces or scraped from the victim's bones.

larged into a scroll at one end, while the opposite extremity has a flat tool-shaped edge. It is evident that the enlarged scroll was so shaped in order to fit into the palm of the hand, thus enlarging the handle and giving an opportunity to grasp the implement firmly while it was being used.

The following figures (*E*, *F*, *H*, *I*) represent other forms of sacrificial knives whose curved ends have been enlarged into handles or disks, evidently better adapted for grasping in the hand. A common feature of these knives is a notch in the periphery, which in two instances (*J*, *K*) becomes quite prominent. The first of these scroll-shaped knives to be mentioned was a fragment illustrated in the author's report on the Aborigines of Porto Rico.[66] At the time this report was written the complete form was unknown. The first unbroken specimen of the type of sacrificial knife was described by Mr. T. A. Joyce in his account of prehistoric implements from the West Indies in the British Museum.[67]

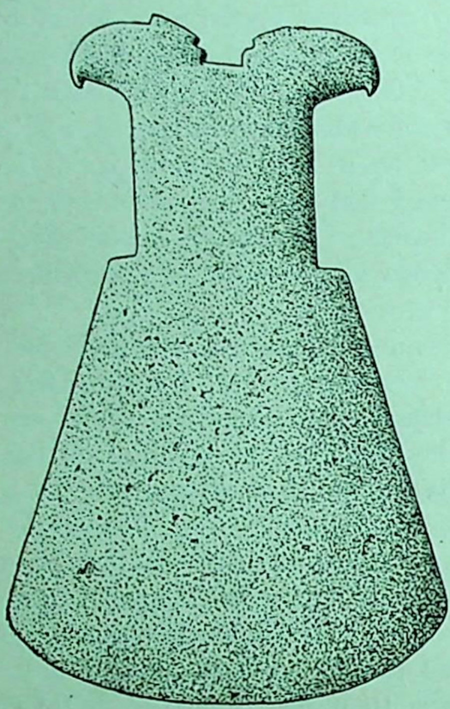


FIG. 3.—Eared ax from Guadeloupe. (11.2 inches.)

The specimens figured in plate 29, *I*, *J*, *K*, resemble sacrificial knives in some particulars, but differ from them as follows: The inner edge of these specimens is almost straight, the other curved, the two being separated by a shallow notch, imparting to the implement a form resembling an ax with sharpened edge on one side.

EARED AXES

All the members of this type of stone implements possess two extensions, one on each side of the head (fig. 3). These projections sometimes resemble forks, and at times impart to the head of the implement the form of a fishtail. In other specimens they take the form of simple rounded knobs, recalling incipient horns. The body of the specimen shown in plate 30, *D*, is perforated. As a rule, as in plate 30, *I*, the groove for hafting is absent in implements of this type,

[66] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. xxiii, *k*.
[67] Journ. Roy. Anthrop. Inst., vol. xxxvii, p. 418.

but in figure *E* this furrow, although shallow, is well defined. The specimen, plate 30, *E*, is exceptional in possessing two angular ridges, extending one on each margin of the sides, almost half the length of the shaft. Plate 30, *F*, *G*, show prominent typical earlike appendages to the head, characteristic of the type, but in plate 30, *H*, *I*, these lappets are small, separated by a slight shallow notch. These ears, which in the preceding illustration, plate 30, *G*, are prominent, suffer a reduction in size in a specimen not shown, where they appear as lateral projections and low prominences, one on each side of the middle line of the ax. The two margins of this ax are almost parallel, the cutting edge being slightly curved. In none of the specimens is there an indication of a groove for hafting.

The form of implement shown in plate 30, *I*, departs slightly from that of the typical eared ax, the prominent characteristics of which are a broad, square incision on the poll at the middle line, and the recurved ears.

Plate 31, *A*, shows a fine ax with prominent lateral projections from its head, and two rectangular elevations replacing the ears on the heads of specimens already described. Appendages of the same form appear in a specimen (pl. 31, *F*) where the upper notches are represented, when seen in profile, by a waved line. The margins of the body of this ax are planes.

In the ax shown in plate 31, *B*, the two projections or ears are confluent, having a perforation or opening between them. The edges of this opening are not beveled but rounded, having been smoothed on their surface, betraying the original lines of formation here suggested. There is visible in this specimen a rectangular ridge situated on the upper rim of each ear or lateral extension similar to those found in other axes of the same type. The margins of the blade in this ax are parallel and somewhat angular, but the sharpened edge or the cutting portion is slightly curved.

The specimens, plate 31, *C*, *D*, *E*, may be called eared axes. The projections from the head of *D* are here bounded by flat planes and are not curved, and the median depression on the head is rectangular.

Engraved Axes

The head of the specimen in plate 32, *A*, is somewhat broken on one side, and the surface of the body of the blade, below the groove, decorated with incised lines arranged in triangles. Plate 32, *B*, bears a number of parallel indentations on the edges.

If the ax shown in plate 32, *C*, be viewed in profile it will be seen to bear, instead of two ears or horns, two grooves for hafting a handle to the implement.

As the upper portion of the head of the specimen, plate 32, *D*, is much broken, it is very difficult to determine its original form. The general appearance of the unbroken portion would indicate a perforation. The instructive features in this specimen are the figure incised on the surface of a depressed area, situated in the middle of the side, and a pointed arch, which lies within the same area. These incised figures in St. Vincent axes remind one of the ceremonial celts of Porto Rico.

Plate 32, *E*, shows a broken ax somewhat similar to the last except that the dumb-bell design which occupies the center of the latter is here replaced by a perforation. The right-hand side of the blade is broken, and when whole we probably have the anomalous feature of an ax with its blade divided in its length in such manner as to present two cutting edges. This remarkable feature in the blade is no less strange than that of the head of the same implement, which is unlike that of any known ax.

In plate 32, *F*, where we have type features of the group of implements with projections on the head, there is a well-marked shaft, narrow blade, and well-marked ears on the head, in the form of angular extensions, one on each side of a median furrow.

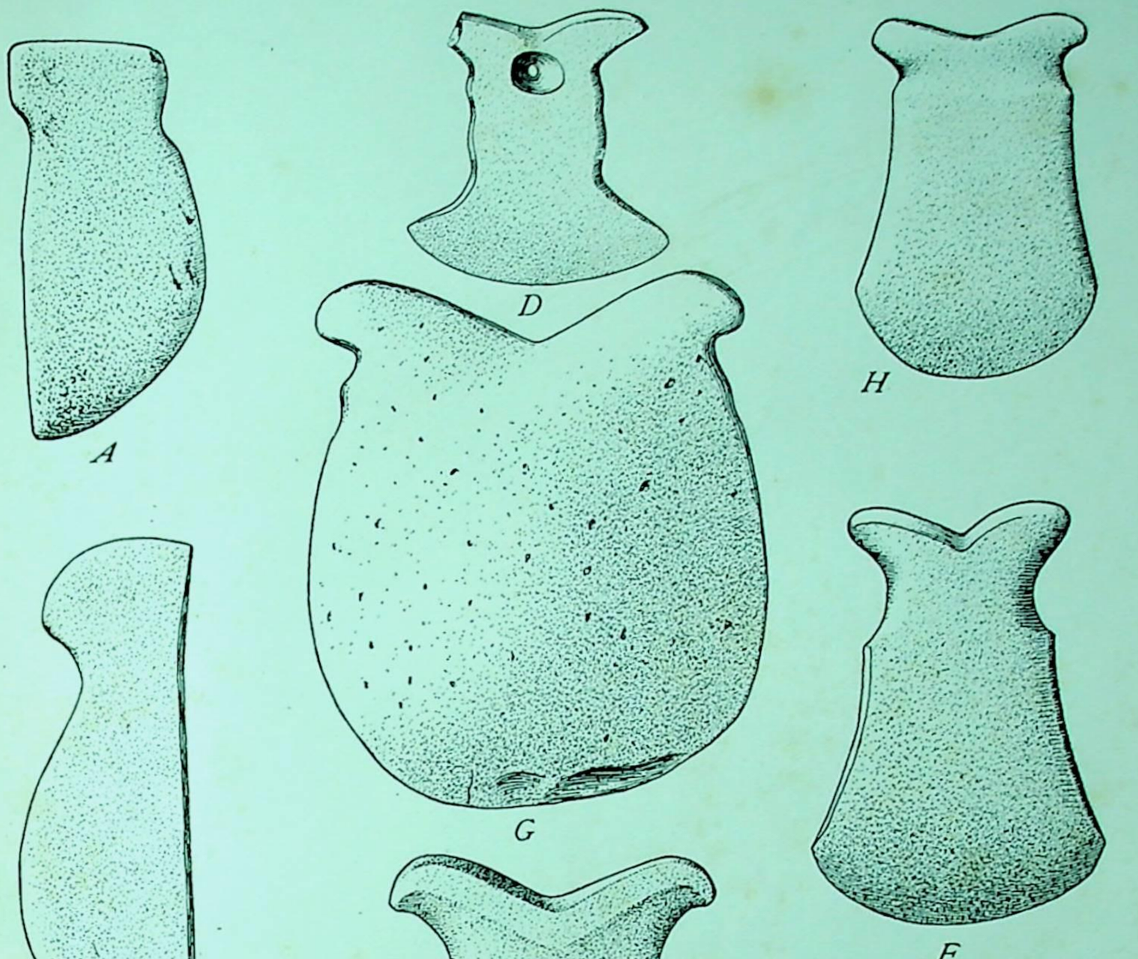
Problematic Stone Objects

Plate 33, *A*, is melon-like, and, like the others, enigmatical so far as use is concerned. Although these specimens are made of a hard stone their forms recall certain objects made of pumice stone found at the hamlet called Fancy, on the north side of the great St. Vincent volcano, Soufriere.

The specimen illustrated in plate 33, *B*, with several features ascribed to stone implements, is exceptional in possessing a peculiar beveled edge which is shown on the right lower side. Its opposite side, not shown in the figure, has an identical form to that shown in the illustration.

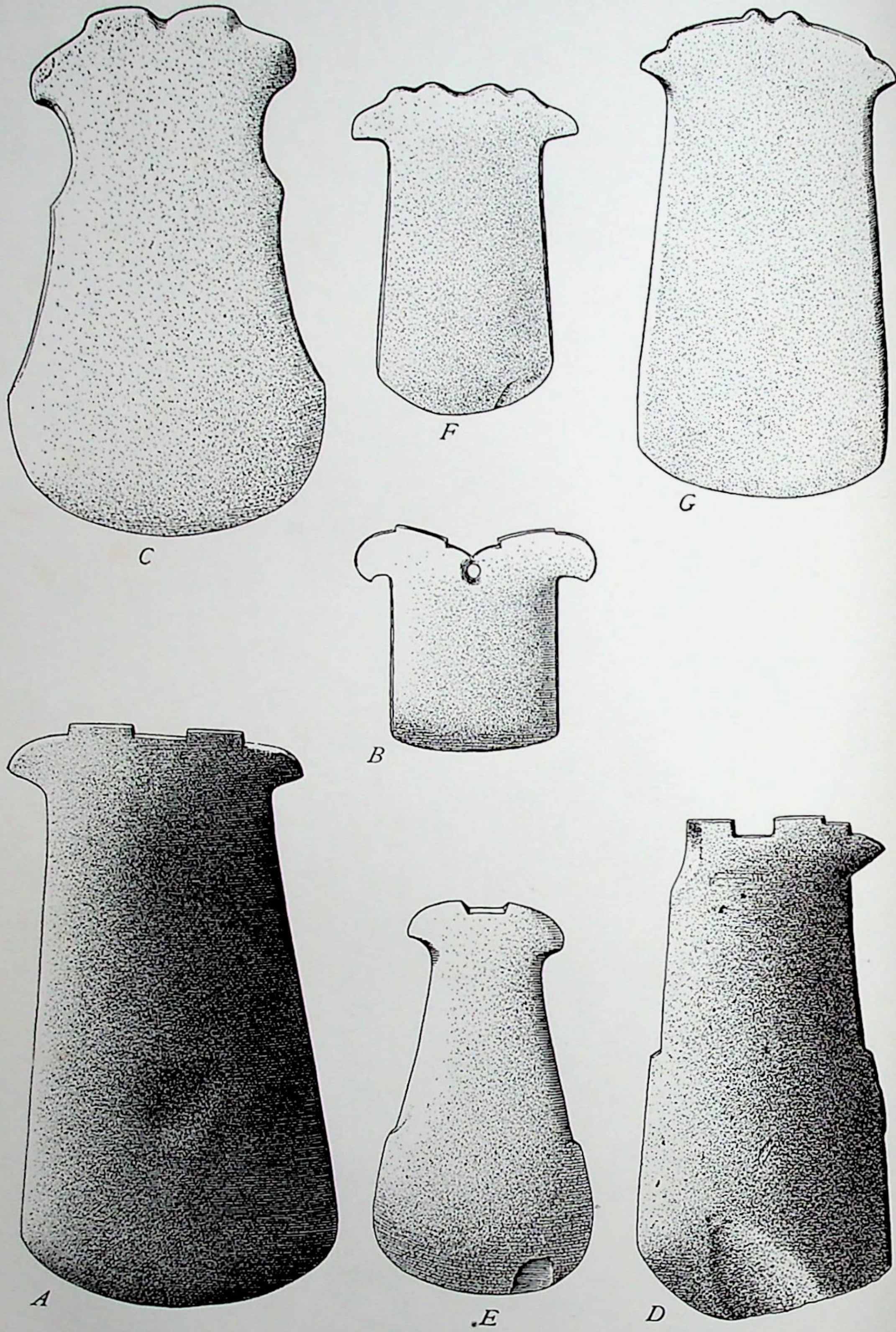
Plate 33, *C*, so far as form goes, to all intents and purposes represents a pestle, but unlike all grinding implements thus far described, it is rectangular instead of oval or circular when seen in cross section. The general appearance of this implement recalls a stamp or rubbing stone, but, although this resemblance is heightened by the form of a handle, the majority of other features place this specimen in the group we are considering.

The two globular stones of irregular form shown in plate 33, *D*, *E*, have artificially worked surfaces and resemble each other in the common feature, a slight indentation on the surface, by which a pointed projection recalling a tooth is brought into relief.



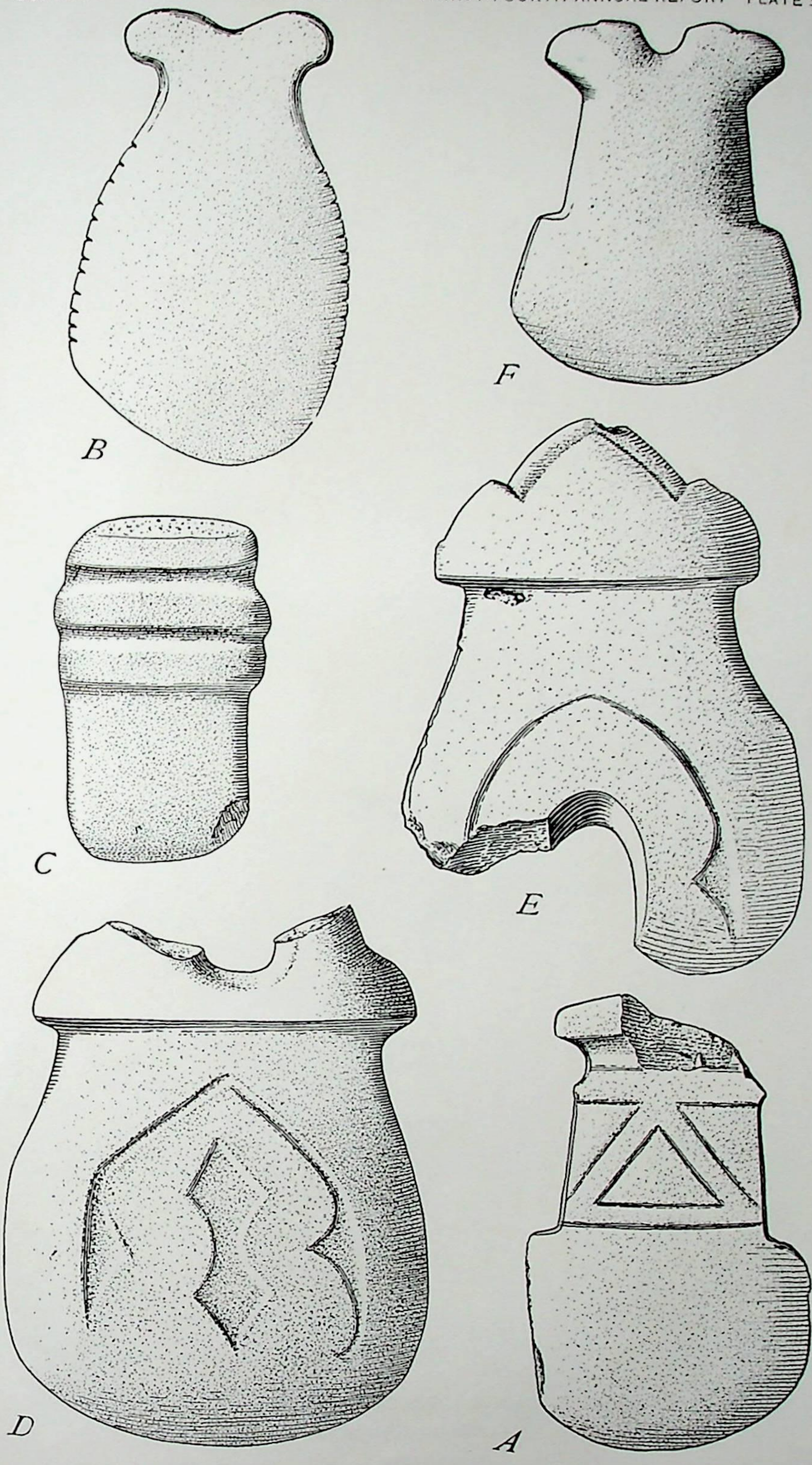
EARED STONE IMPLEMENTS FROM ST. VINCENT AND GRENADA

B, 6.3 inches; *D*, 3.31 inches; *E*, 9.5 inches.



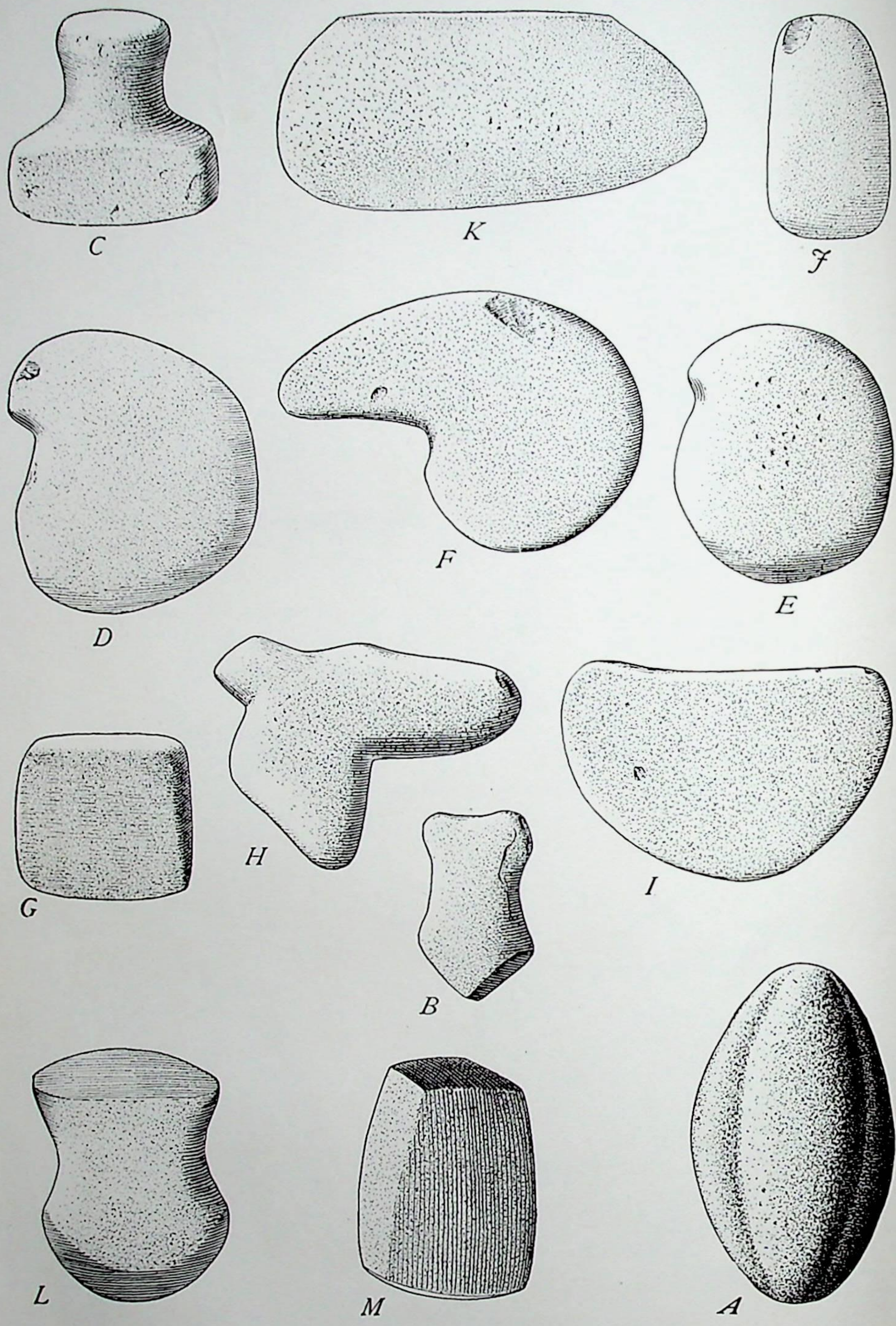
EARED STONE IMPLEMENTS FROM ST. VINCENT

B, 3.25 inches; *D*, 8.3 inches.



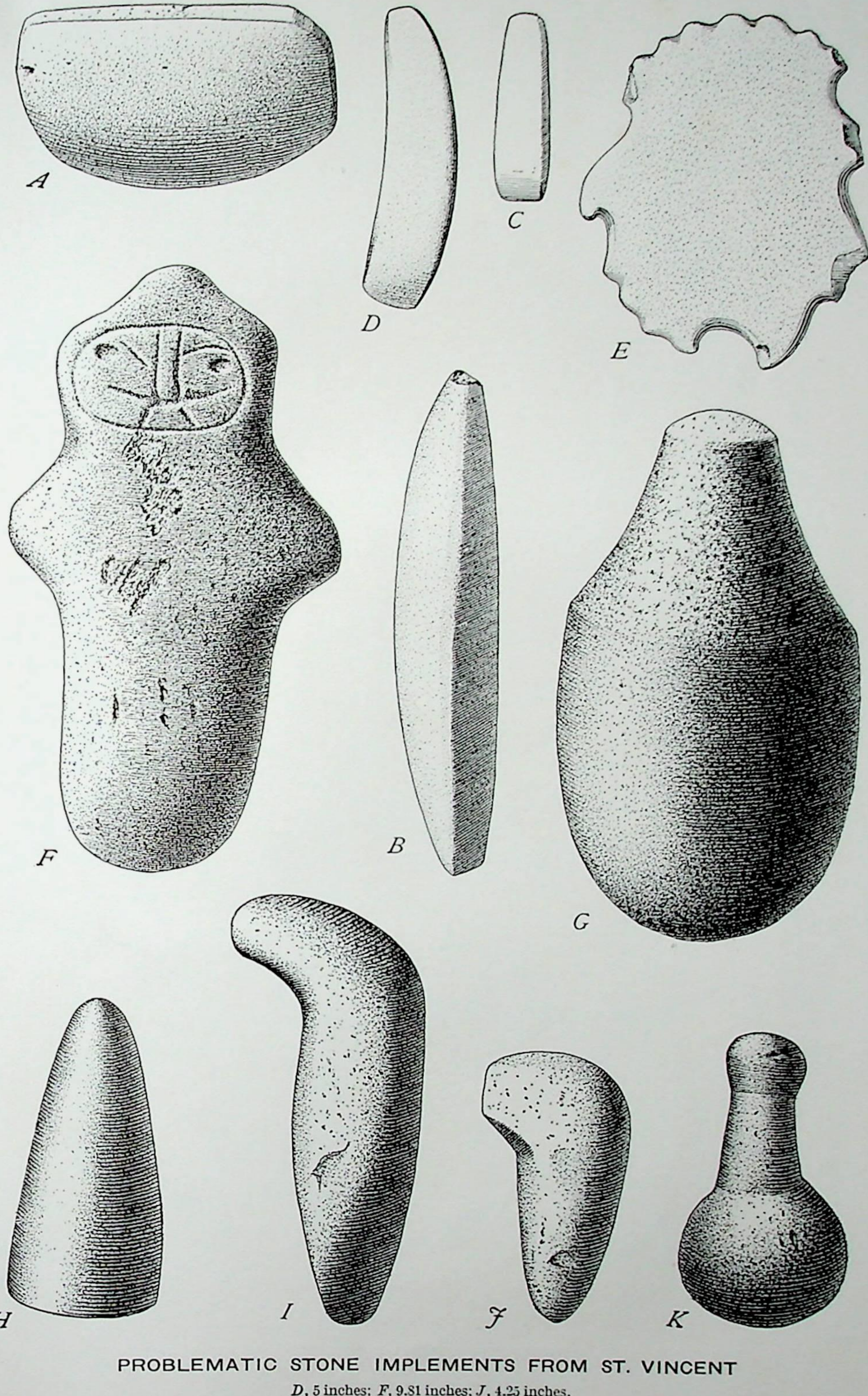
INSCRIBED AND EARED STONE IMPLEMENTS FROM ST. VINCENT

A, 5.5 inches; *D*, 7.4 inches; *E*, 4 inches.



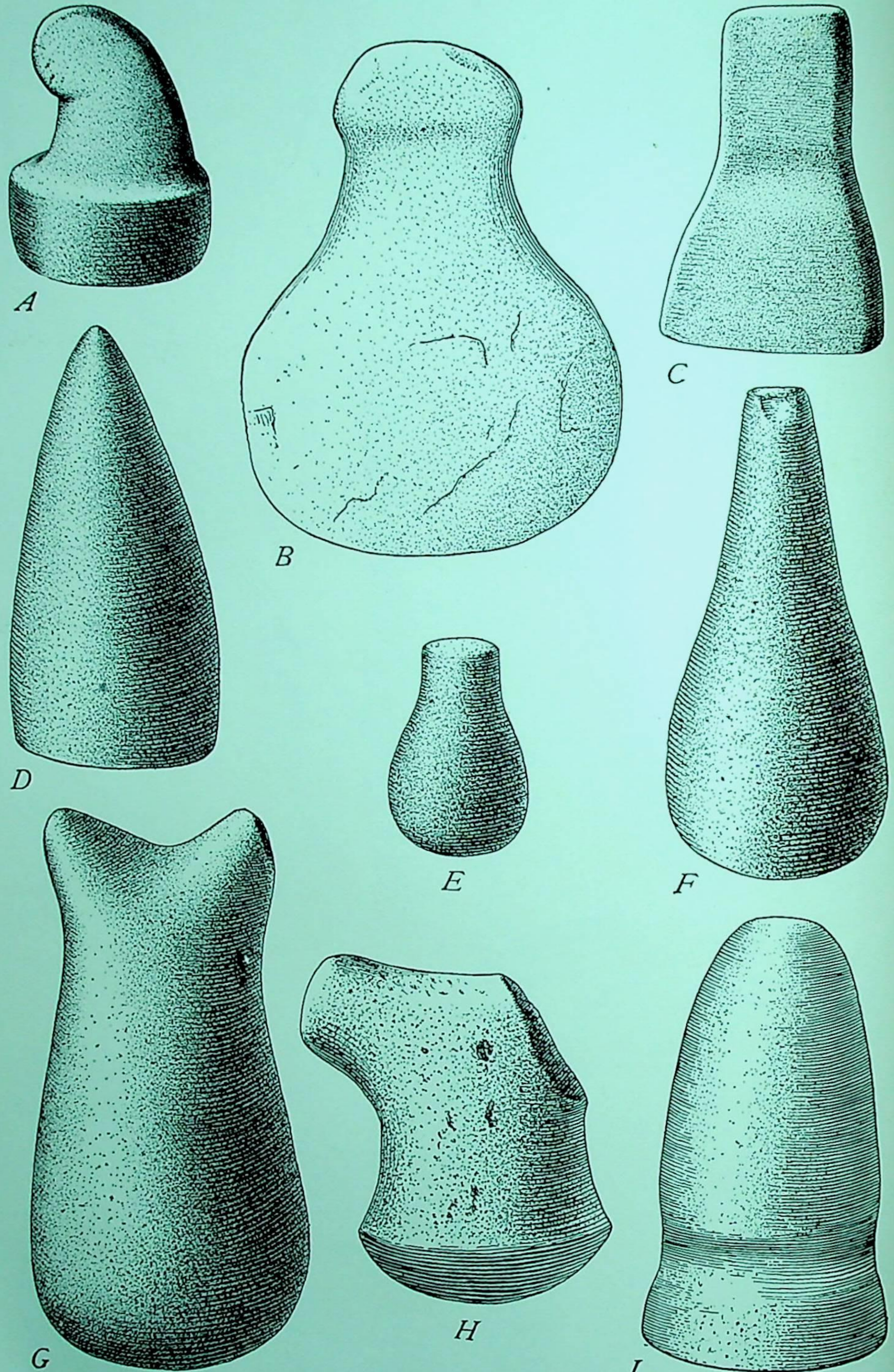
PROBLEMATIC STONE OBJECTS FROM ST. VINCENT

D, 4.38 inches; *E*, 3.88 inches.



PROBLEMATIC STONE IMPLEMENTS FROM ST. VINCENT

D, 5 inches; *F*, 9.81 inches; *J*, 4.25 inches.



PESTLES AND OTHER STONE OBJECTS FROM ST. VINCENT

A, 3.25 inches; *H*, 5 inches.

The problematical implement of irregular shape, plate 33, *F*, is artificially worked, evidently for some unknown purpose, while that illustrated in plate 33, *G*, has six regular faces of unequal size.

Another conical stone, plate 33, *H*, also has six faces which are slightly convex, no two of which have the same length or width. Plate 33, *I*, was drawn from a stone specimen of hemispherical form, flat on one side and convex on the other. Like that shown in plate 33, *J*, it recalls an unfinished ax, being irregular, hemispherical or ovate in form.

The last-mentioned form is preserved in plate 33, *K*, the convex surface of which is irregular throughout. This object might perhaps be better described as an oblate spheroid with flat surfaces.

The general features of these stones are the slightly convex surfaces which reappear in the dumb-bell shaped stone, plate 33, *L*, which has a flat surface on one side and a sharp cutting edge on the opposite. Although in form this specimen reminds one of an ax, it is unlike those thus far considered.

Plate 33, *M*, represents an implement of cubical form with two opposite faces of circular contour and a slight median constriction in the narrow edge. This object has all the outward appearance of a grinding implement, and may have been used to bruise roots, vegetables, or pigments.

The form *A* (pl. 34) is somewhat more elongated than that last mentioned, having surfaces smooth and slightly convex, bounded by flat facets.

Among other problematic stone objects of the same general type there are certain forms, one of which is shown in plate 34, *B*, which resembles a small whetstone, flat on one side, convex on the other, and beveled into a cutting edge at one end. Unfortunately the opposite extremity is broken, but its general form suggests that it terminated in a point. The form of this implement is like that of a chisel, but it differs from chisels found in Porto Rico, Santo Domingo, and the other Greater Antilles.

The boat-shaped stone object, plate 34, *C*, has its two opposite flat faces connected by a flat plane, the width of which is uniform and equals the distance between the faces. This implement terminates at each end in beveled edges, which, however, are not adapted for cutting, although it is not impossible that they may have been used in fashioning clay or pottery objects.

The continuation of the plane around the border of the whole implement found in plate 34, *C*, is also a marked feature of plate 34, *D*. A flat stone with crenelated border, plate 34, *E*, may have been used by potters in rubbing down pottery to the desired form.

Grinding Implements and Pestles

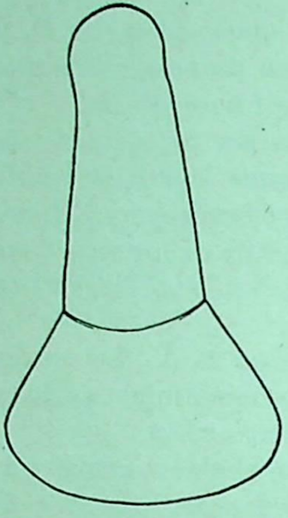


Fig. 4.—Pestle seen in profile. (3.5 inches.)

There is considerable variety in the form of pestles and mortars from the St. Vincent region. Some of the former are oval or spherical stones, slightly concave, sometimes with equatorial grooves. They often have the head, handle, and base differentiated, but the head is not, as in the Santo Domingo pestle, carved in high relief, but incised on the point of the handle. The forms, which are conical, are distinctly characteristic of St. Kitts, although they occur on all the islands from Porto Rico to Trinidad.

The object plate 34, *F*, is of unknown use and is remarkable on account of the face cut on one end. Plate 34, *G*, is placed among pestles on account of the similarity in its form to these implements. Plate 34, *H*, has a pestle-like form and *I* and *J* are objects of unknown use. Plate 34, *K*, is a pestle with globular end and handle slightly enlarged at its termination.

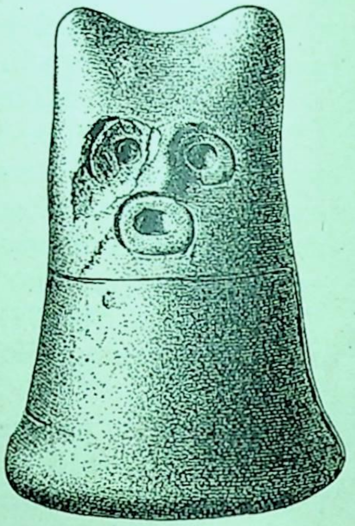


Fig. 5.—Stone pestle with face. (3.31 inches.)

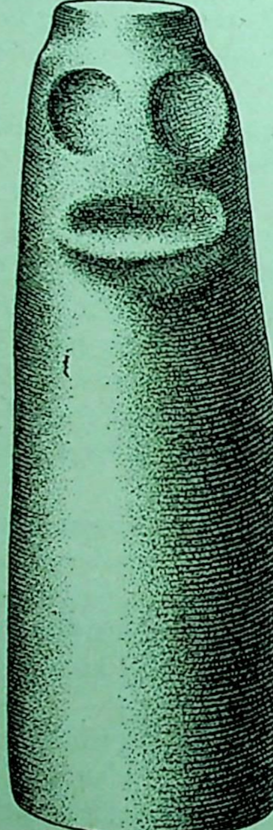


Fig. 6.—Stone pestle with eyes and mouth.

Different objects from the Lesser Antilles are represented in figures 4–9. Figure 5 represents a pestle, the end of which is prolonged into two knobs or ears and the opposite grinding surface slightly enlarged. It has a face carved on the handle, with eyes, nose, and mouth well represented. In many respects this pestle recalls those from Porto Rico. The object shown in figure 9 has the form of a pestle, but the opening or depression at one end would indicate that it was used for some other unknown purpose. Figure 6 is a pestle with eyes and mouth represented at one end, while in figure 7

these organs are simply pits or depressions. In figure 8 the face is in relief. Both figures 7 and 8 have a transverse perforation, which would seem to indicate that they were not pestles, but were suspended, possibly as ornaments.

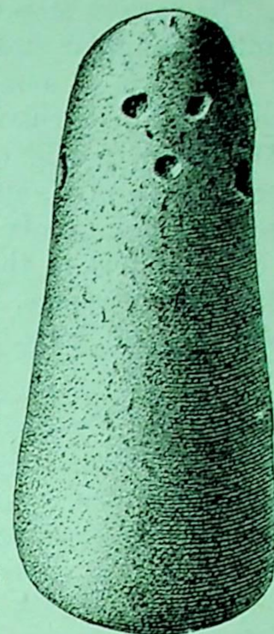


FIG. 7.—Stone object in shape of pestle. (3.88 inches.)

On plate 35 there are figured a number of pestles which vary in shape, all but one (*B*) having the conventional form. That represented in *A* has a circular base and the point of the handle turned to one side. In *C* the form is angular, a rare condition among pestles, but *D* has the regular conical form. The point of the handle is cut off by a flat plane in *E* and in *F* the whole implement is pyriform. The pestle shown in *G* is bicornis, and *H* also originally had two horns, one of which is broken. *I* has a constriction near the base and the top of the handle is rounded.

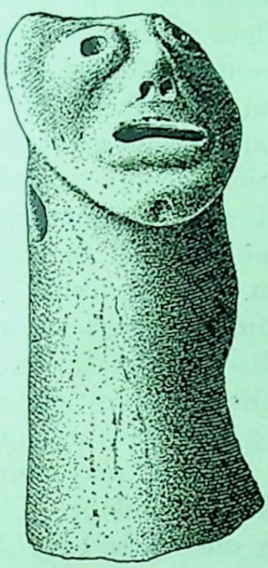


FIG. 8.—Head and handle of broken pestle.

STONE FETISHES, AMULETS, AND IDOLS

The St. Vincent area has furnished a few fetishes that illustrate the idolatry of the Lesser Antilles. Representations of idols that exist in public or private collections from these islands are not as well made as those from the Santo Domingo-Porto Rican area and the characteristic forms of those known from the two areas are different. The only examples of three-pointed stones are two or three specimens belonging to the fourth type which were collected in Grenada. There are only a few of these, and I doubt whether those known came from St. Vincent or from the Greater Antilles.

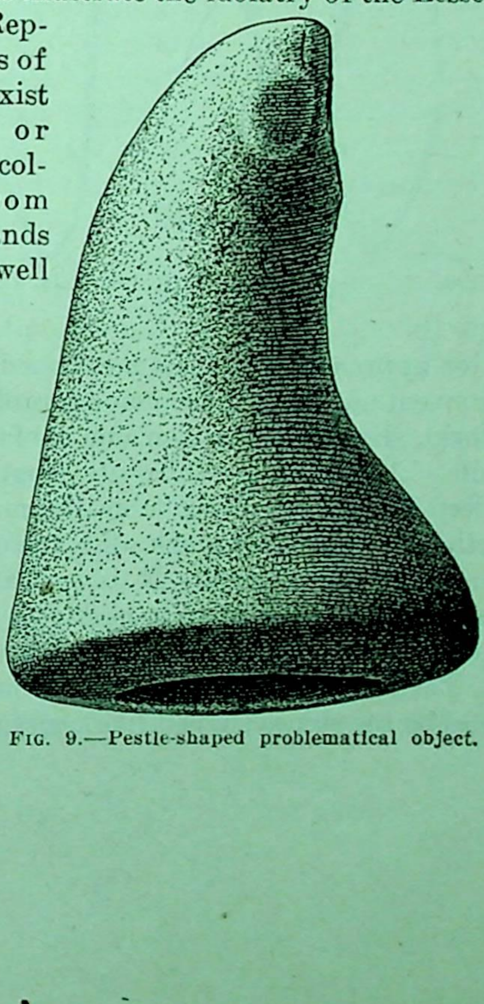
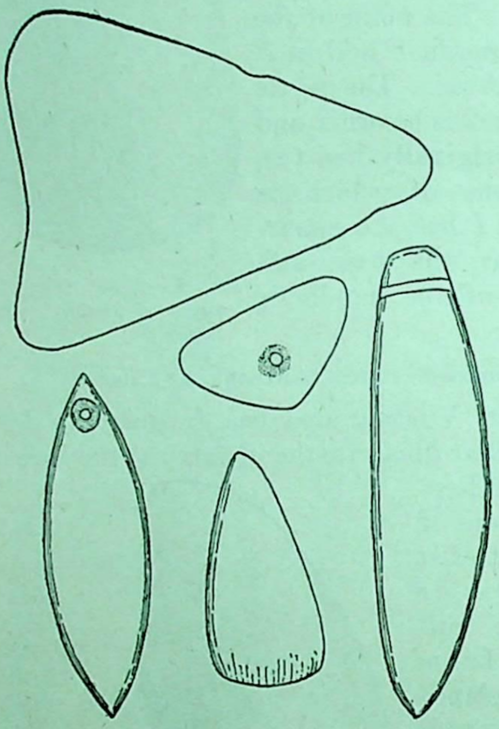


FIG. 9.—Pestle-shaped problematical object.

The various stones illustrated in figure 10 include forms of pendants, triangular stones of unknown significance, and ornaments.

One form of amulet (pl. 36, *A*) in the Heye collection resembles in several particulars a specimen in the Vienna Museum figured by Dr. Heger (see fig. 61). This specimen resembles in form a worm or centipede and has appendages to the head, the body being divided into segments by grooves.

The amulet in the Heye collection shown in plate 36, *B*, is rectangular in shape, much broader than wide, with a wing on each side of the body. The head of this specimen has two perforations, and is separated from the body by a slightly curved groove. There are similar perforations near the upper edges of the wings. In the center of the body of the amulet there is a pit surrounded by a circle, from which extend curved lines, indicating appendages with some likeness to legs. The form and markings on this specimen suggest a conventionalized animal, as a bird, while the position of the marginal perforations indicates that it may have been used as a pendant. The surface is smooth and highly polished, as if worn or much handled by its former owner.


Fig. 10.—Stone pendants. (3, 1.38, 2.44, 1.88, 3.31 inches.)

The form of the amulet (pl. 36, *C*) from the Heye collection approaches that last mentioned, but the different parts are more conventionalized. This amulet, probably a fetish, is quadrangular in form, slightly curved on one surface and almost flat on the opposite. At about one-third its length the specimen is crossed by a deep groove extending from the margin to the middle of one side; other deep grooves mark off a triangular figure that may have been intended for a head. It is probable that this stone was used as a pendant attached to a necklace, serving as a fetish for personal protection or as an ornament.

The small, conical, well-worn, and perforated stone (pl. 36, *D*) recalls the stones shaped like cones above described, but differs from

them in having a sulcus or groove cut in one side, but not extending around the rim of the base. This specimen, like the last mentioned, was probably a fetish or worn as an amulet on a necklace.

To the same type as the stone objects above mentioned belongs a thin semicircular stone object which has two perforations, one at each end of a scroll shown on each face. The margin between these scrolls becomes straight instead of curved. The form of pendant next to be mentioned consists of stones with perforations on their margins. The simplest form of perforated stones used as pendants is seen in plate 36, *D*, where we have an oval nodule with a perforation extending through the object. This nodule is made of the hardest kind of rock and its perforation shows a degree of skill in the use of boring implements which is not surpassed in work of its kind.

The specimen illustrated in the two following figures (pl. 36, *E*, *G*) from the Heye collection, is made of a hard stone, cut in a triangular form, perforated with incised decorations on both surfaces. A perforation for suspension of this specimen is large and regularly beveled.

Enigmatical Objects

The author approaches a consideration of these singular objects with some trepidation, for while they are the most exceptional forms reported from the Antilles they are not unlike certain stone objects of undoubted Indian manufacture found elsewhere in the West Indies.

His first introduction to them incited a keen desire to see the locality in St. Vincent where they were said to have been found and discover others in situ. Through the kindness of Mr. Heye, the author, accompanied by Rev. Thomas Huckerby, made a visit to the locality, but, either because his time was too limited or from other reasons, no additional specimens were obtained. The objects figured in the accompanying plates were the only specimens of the type examined. The majority are said to have been found at the settlement called Fancy, on Fancy River, 250 yards from the sea, by Mr. Morgan, from whom Mr. Huckerby obtained them and afterwards sold them to Mr. Heye. They were exposed in digging a roadbed from Shipping Bay to Fancy. The objects have a red or dark gray color, sometimes with patches of black, and are made of a soft volcanic tufa that readily crumbles, especially under moisture. They show a great variety of form and a number of plates (pls. 37–61) of the more striking ones are here given for comparison.

These objects are unique and unlike any Antillean objects known to the author. It is impossible for the author to interpret their use, as his knowledge of the circumstances under which they were found is limited. It has therefore seemed justifiable to give what might be considered a superabundance of illustrations to guide future arche-

ologists in studies of these forms to which the author is able to add so little definite information.

The following mention of these objects by Mr. George H. Pepper is published in an account of "The Museum of the American Indian, Heye Foundation."[68]

"Of still greater interest," he writes, "to the student is a series of both well-known and fantastic objects made from a metamorphosed volcanic scoria. There are several hundred specimens, all of which were found in a restricted area near Fancy at the base of the volcano of La Soufrière. Nothing like them has been found in the adjacent islands, and it is quite probable that they were made and deposited at this place as votive offerings in way of propitiation to the god of the volcano."

Regarding their age the Rev. Thomas Huckerby, from whom Mr. Heye purchased these objects, writes as follows: "I think that the specimens indicate a very old civilization. Probably they take us back beyond the Carib occupation. As suggested in a previous letter, it is probable that these specimens and the people who used them were covered up by the ejecta of a prehistoric eruption of the Soufriere. * * *"

The author is unable from the scanty evidence available to determine either the age or genuineness of these objects; but he would judge from a personal examination of the site where they are said to have been found that they date back to pre-Carib times. No object was found on the site that resembles them, so we are obliged to rely on the testimony of the collectors for their authenticity.

These objects show artificial working and appear to belong to a type. Their variety of form may be best illustrated by considering in turn several of the most common representatives. Their three-sided form is prominent in plate 37, *A*, somewhat resembling in outline the three-pointed stone idols of the fourth type partially finished, their points being rounded and without superficial decorations or carved heads.

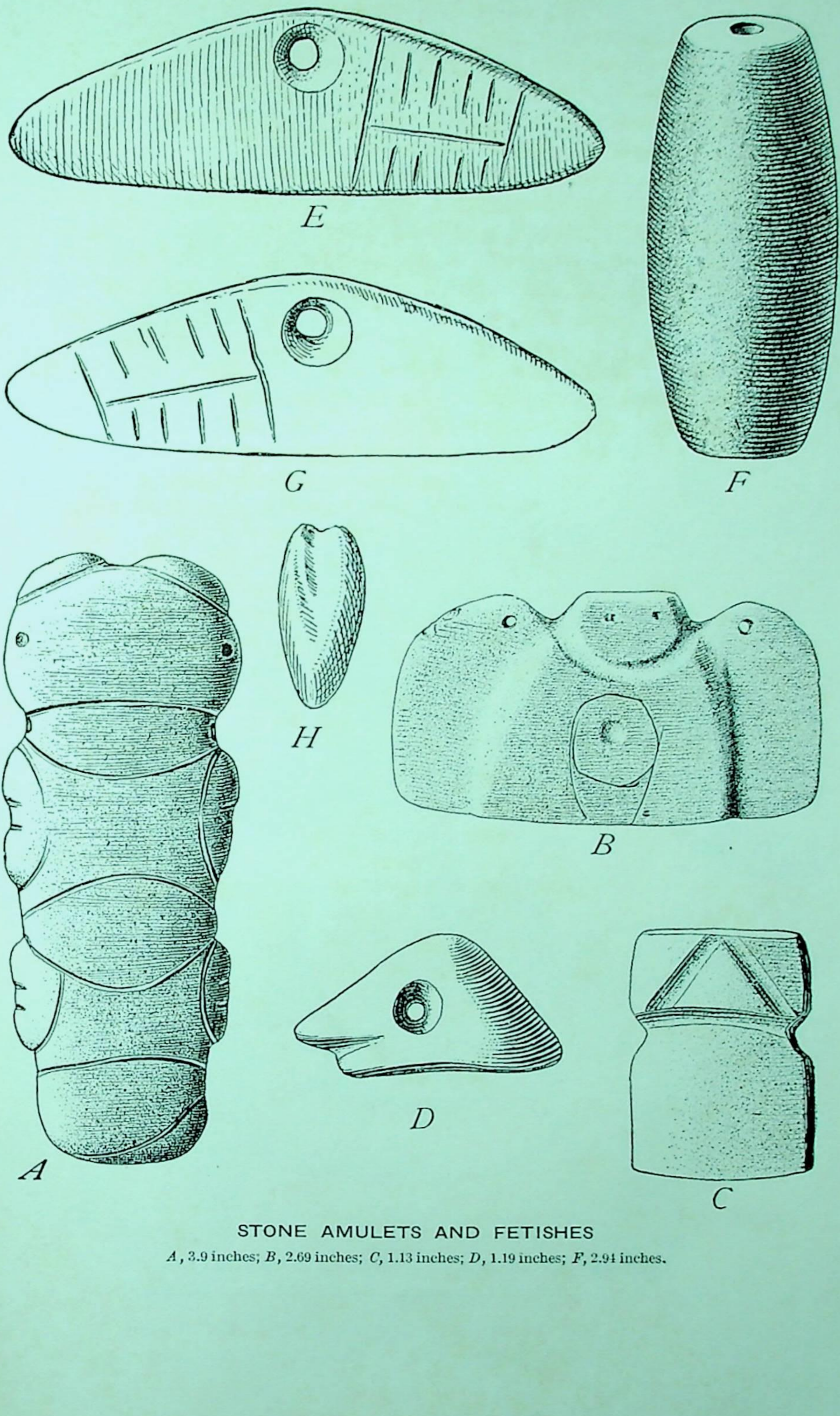
In plate 37, *B*, we have a similar stone, possessing three rounded points, two of which are extended in such a way as to resemble wings, arising from a spherical middle region that may be designated the body.

This modification of two points into forms of wings has gone still further in plate 37, *C*, where the body has taken on an angular or rectangular form.

The specimen shown in plate 37, *D*, resembles an implement with a groove for hafting and a pointed extremity; the other pole being lens-shaped. It resembles in profile the other specimens, but its use is unknown.

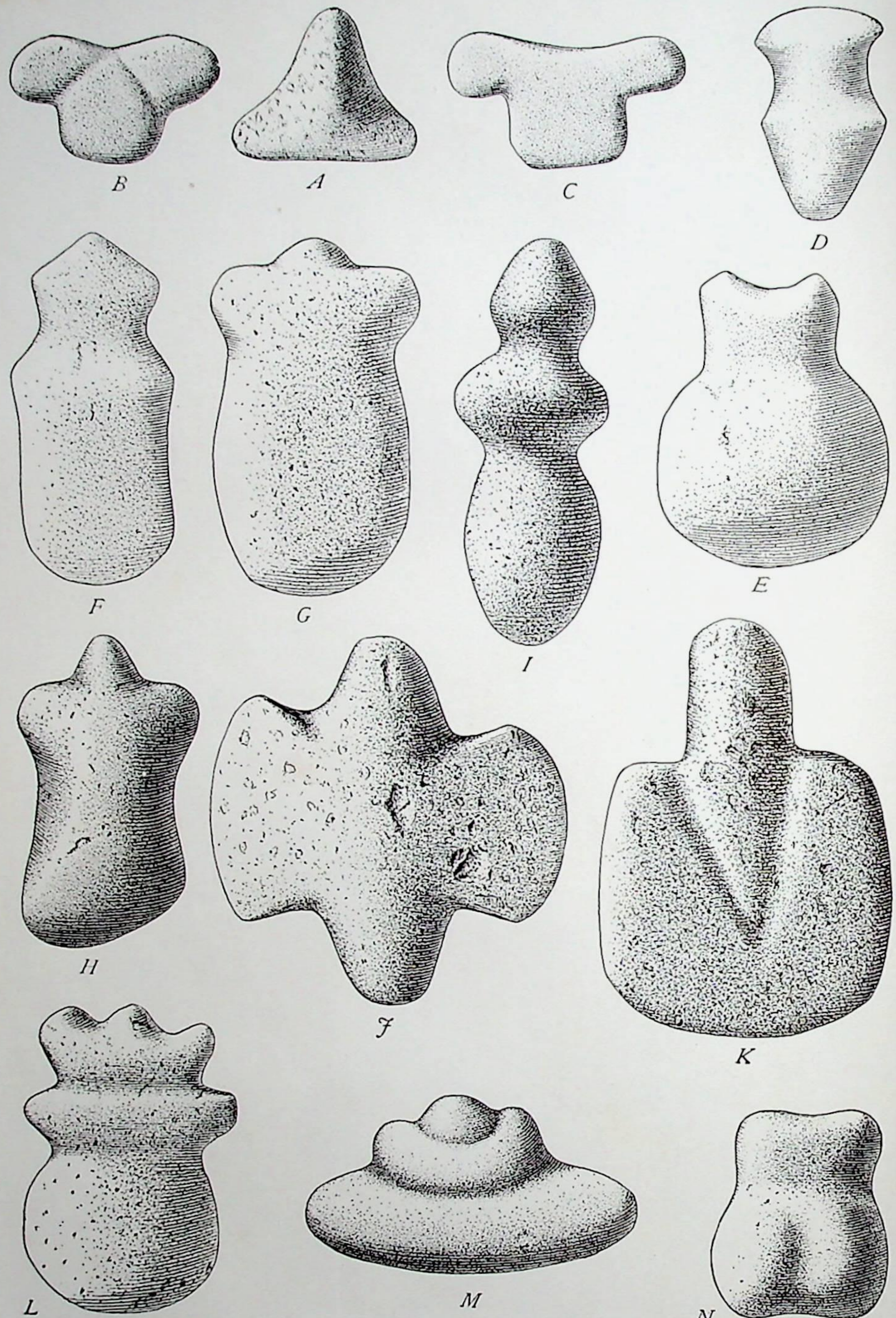
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[68] Geographical Review, vol. II, no. 6, p. 411, 1916.



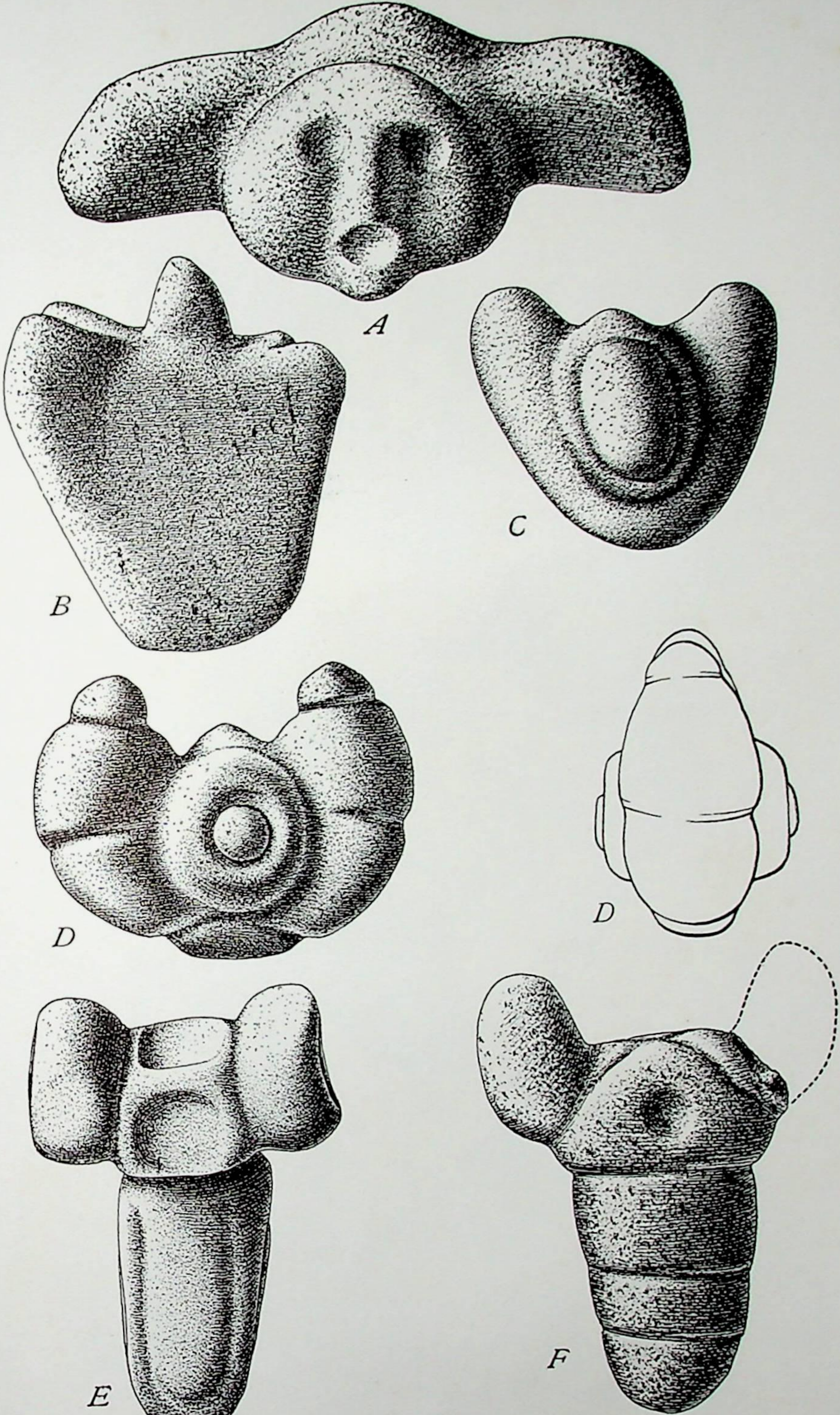
STONE AMULETS AND FETISHES

A, 3.9 inches; *B*, 2.69 inches; *C*, 1.13 inches; *D*, 1.19 inches; *F*, 2.94 inches.



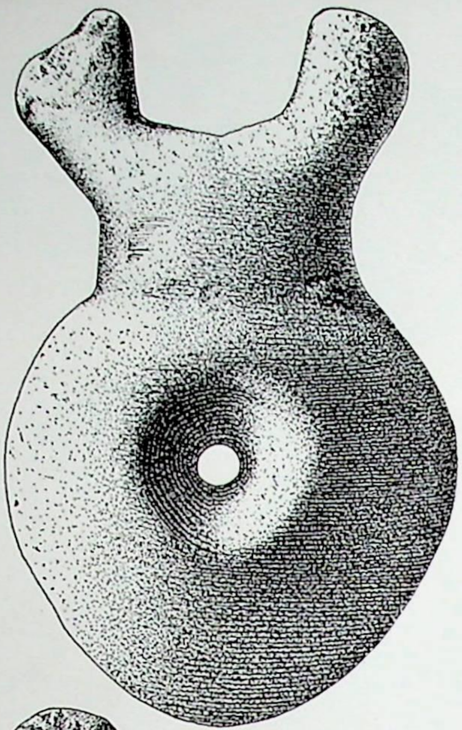
PROBLEMATIC OBJECTS FROM ST. VINCENT

B, 3.81 inches; *C*, 4.31 inches; *I*, 7.44 inches; *K*, 8 inches; *L*, 5.5 inches; *M*, 2.75 inches.

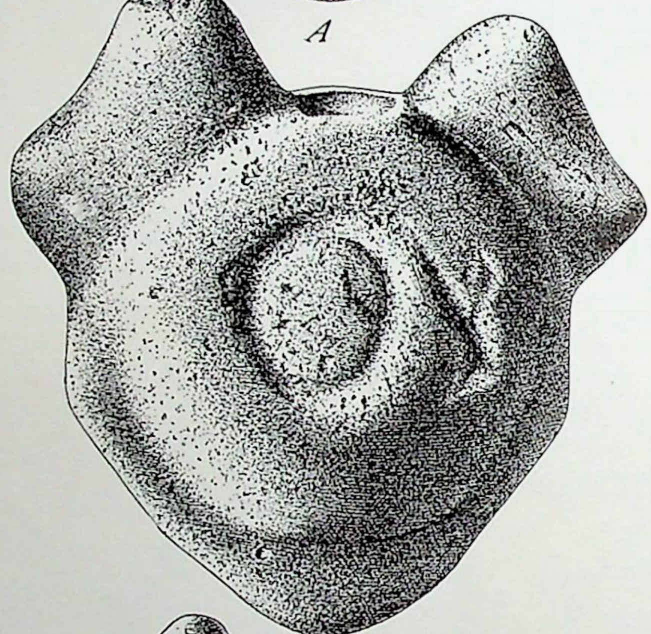


PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

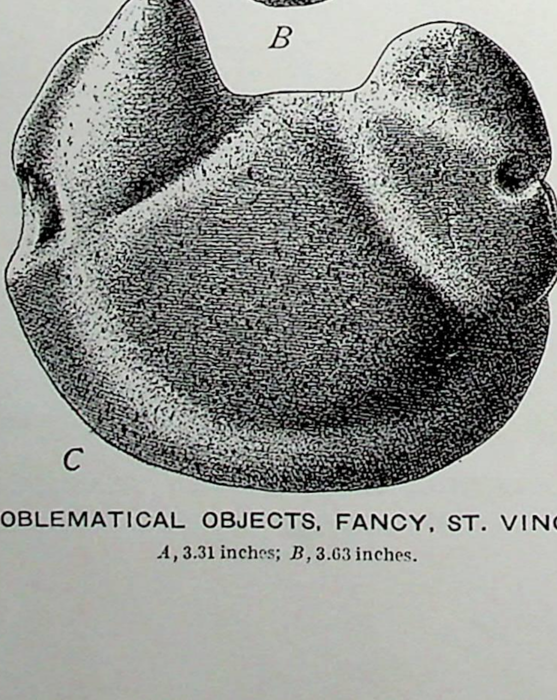
A, 4.5 inches; *C*, 2.13 inches; *D*, 2.5 inches; *E*, 2.88 inches; *F*, 2.63 inches.



A



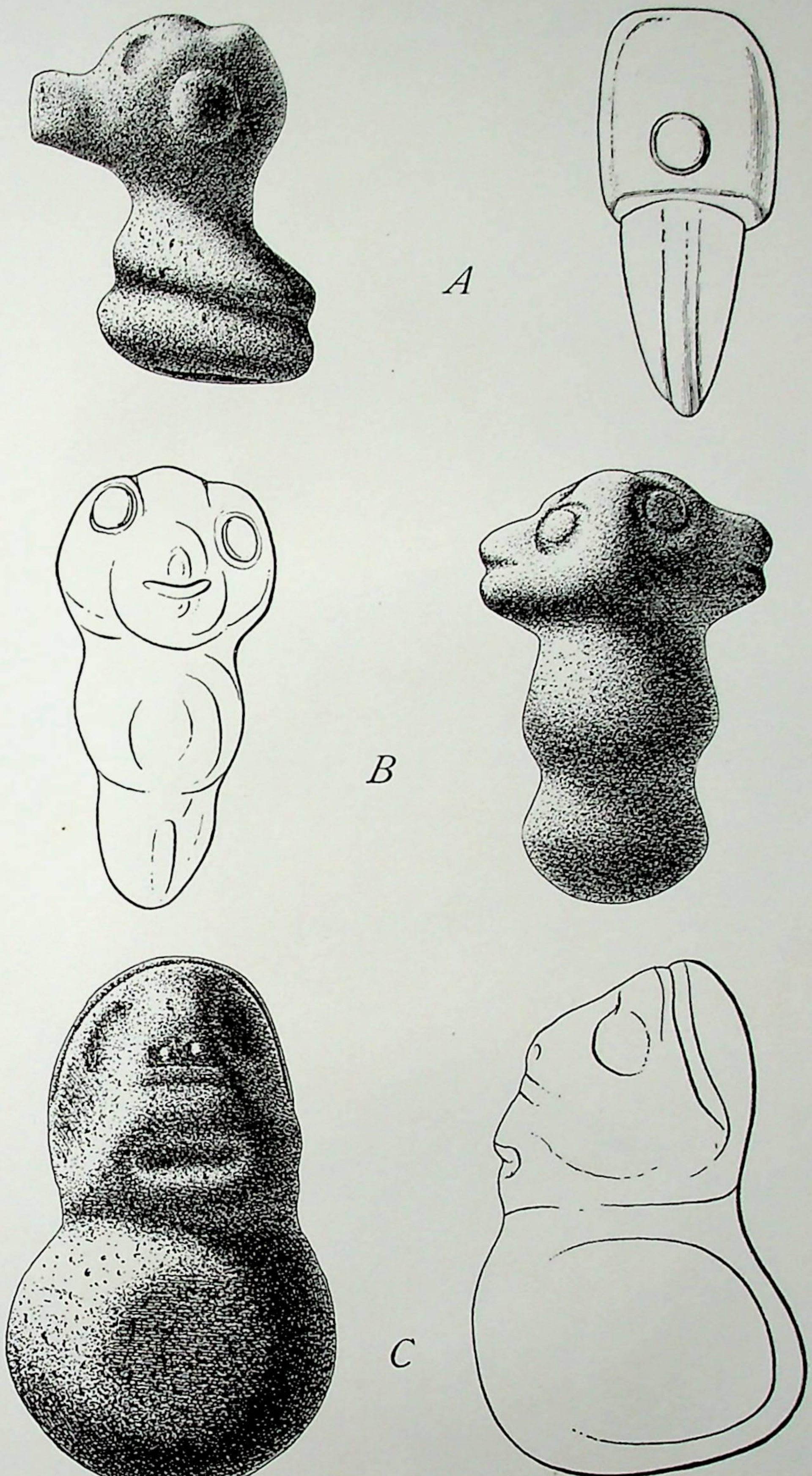
B



C

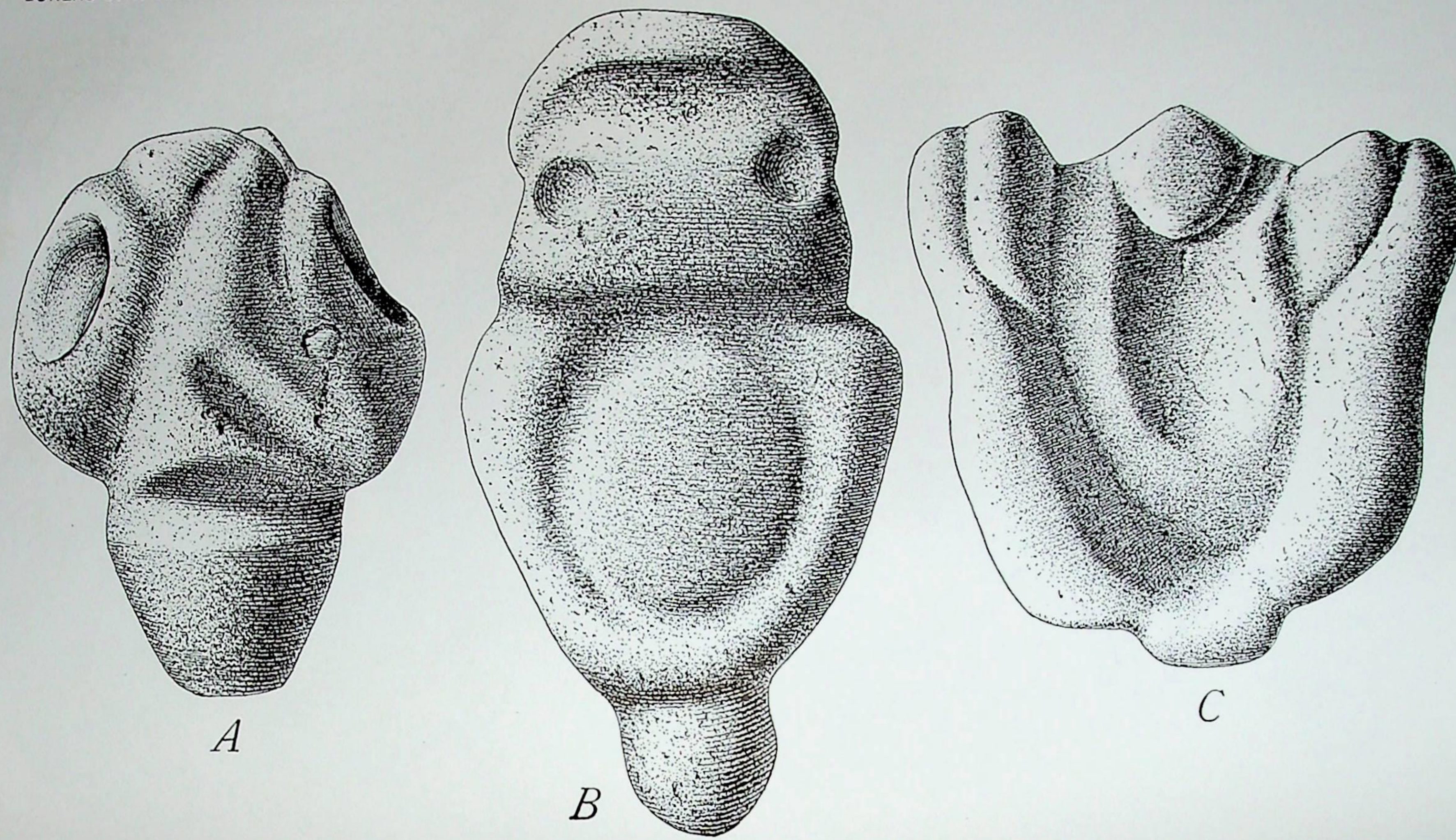
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.31 inches; *B*, 3.63 inches.



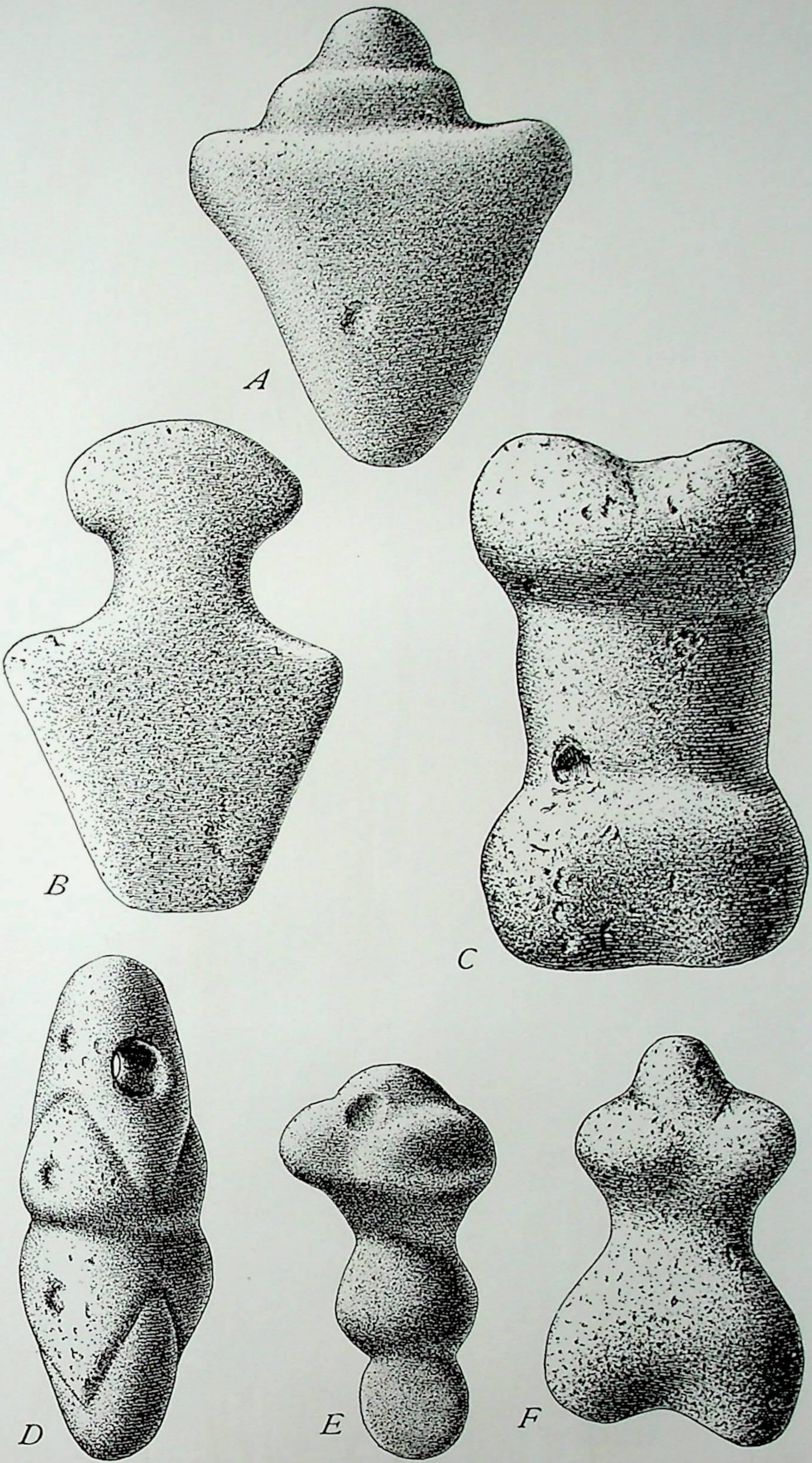
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.5 inches; *B*, 4.13 inches; *C*, 3.19 inches.



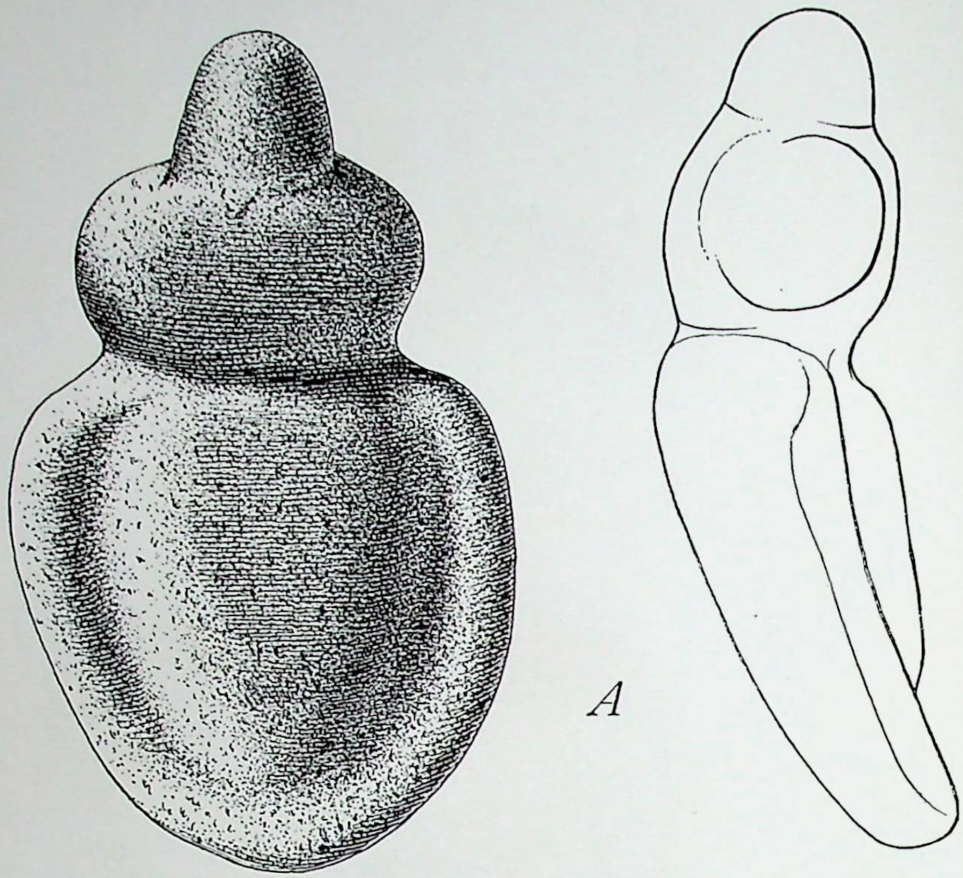
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.38 inches; *B*, 4.69 inches.

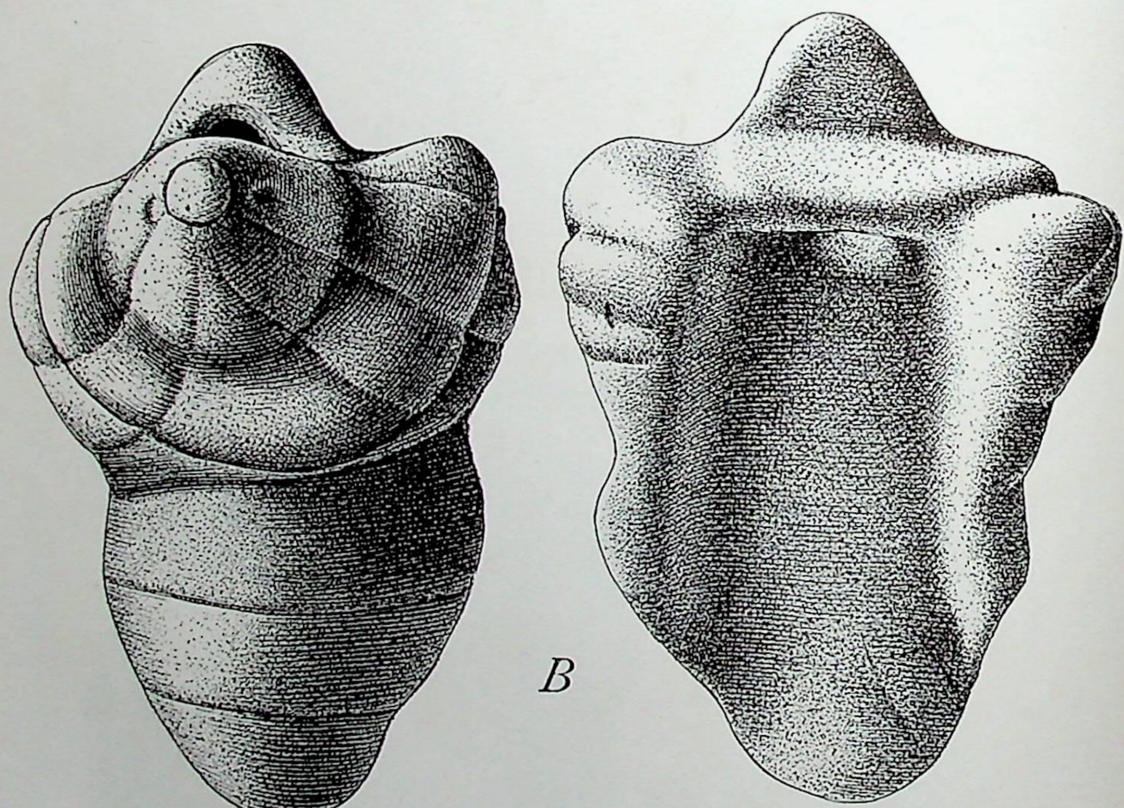


PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.56 inches; *C*, 3.41 inches; *D*, 3.5 inches; *E*, 2.13 inches; *F*, 2.5 inches.



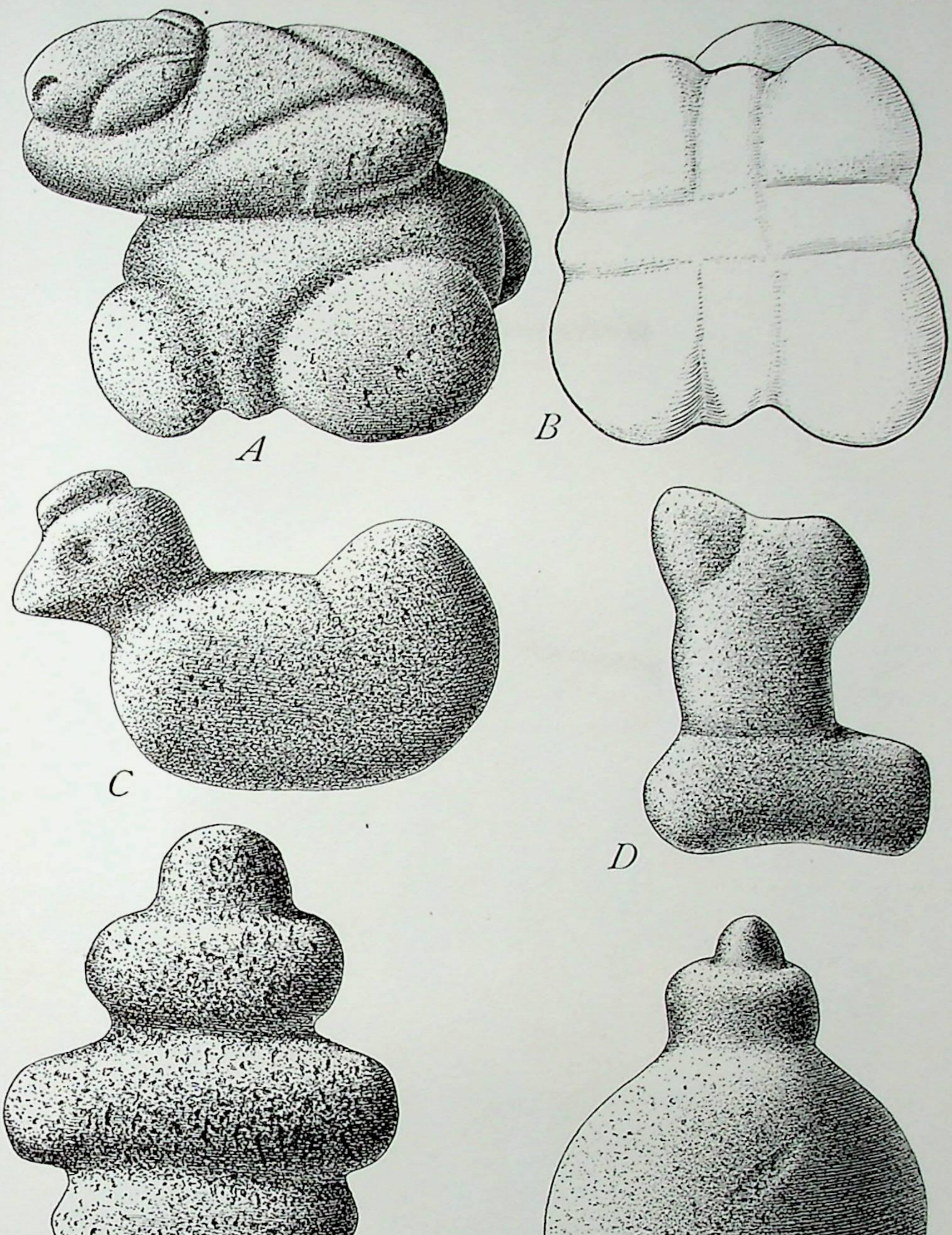
A



B

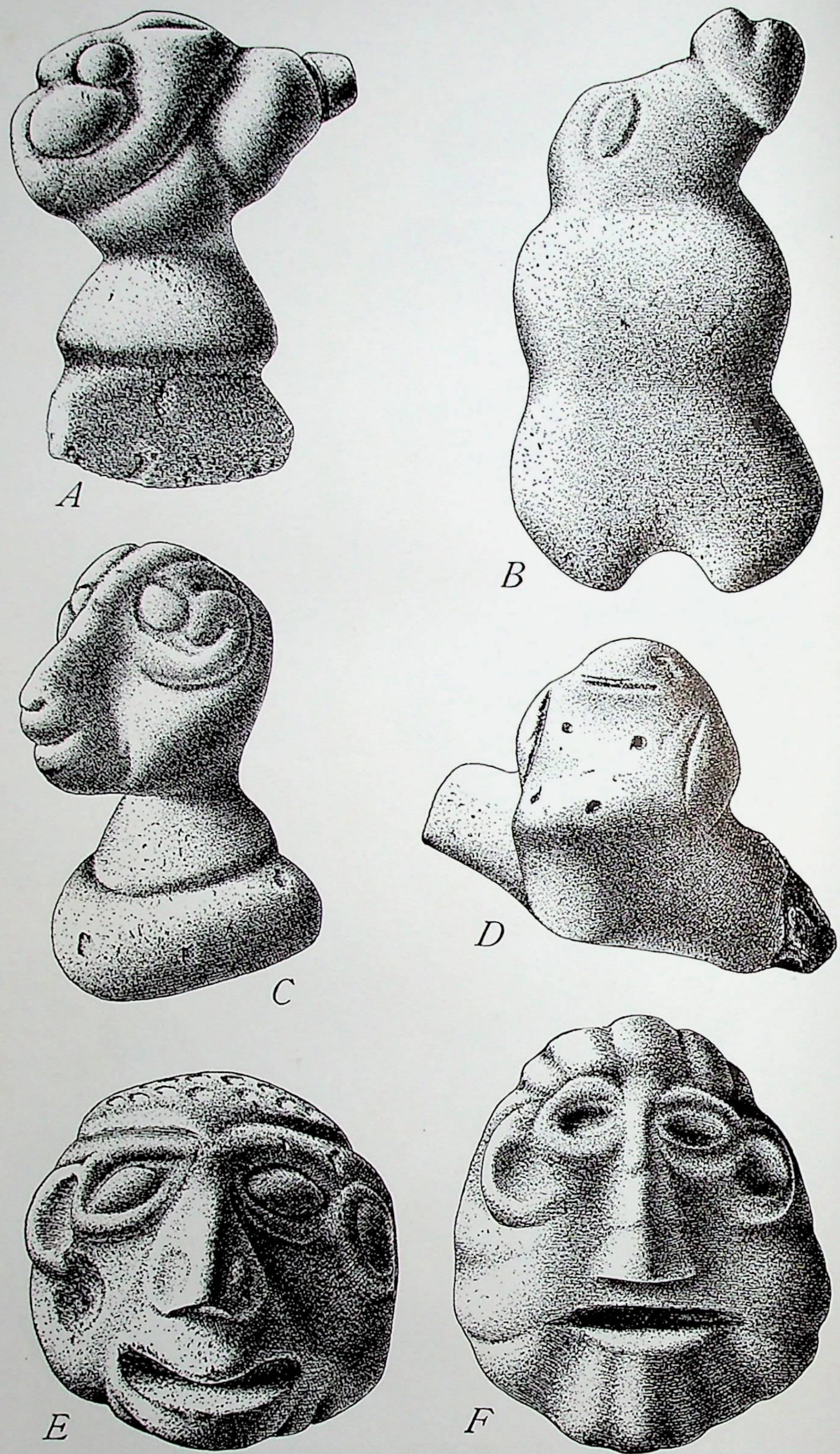
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.19 inches; *B*, 4.10 inches.



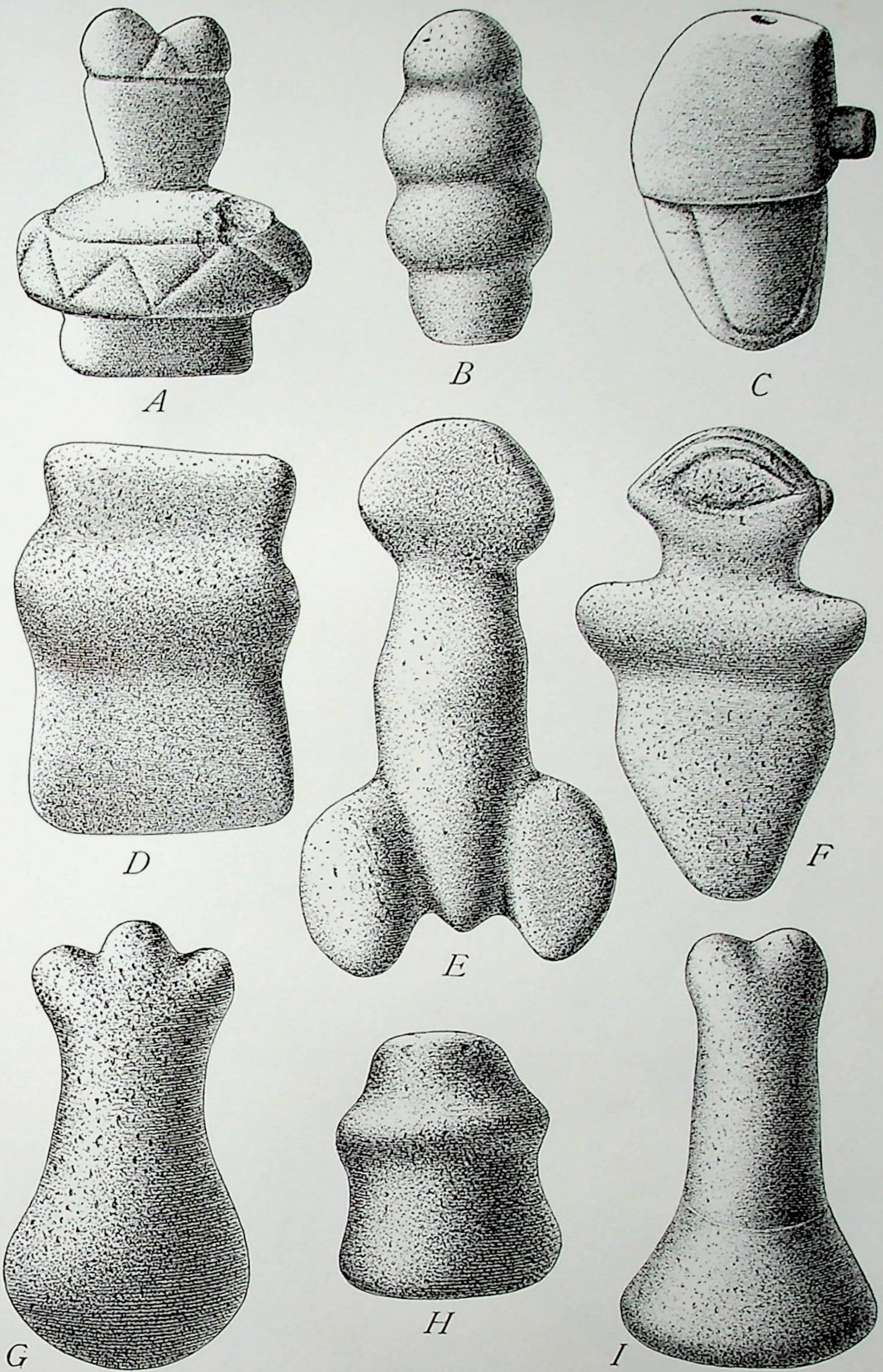
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

C, 3.44 inches; *E*, 5.44 inches; *F*, 4.63 inches.



PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

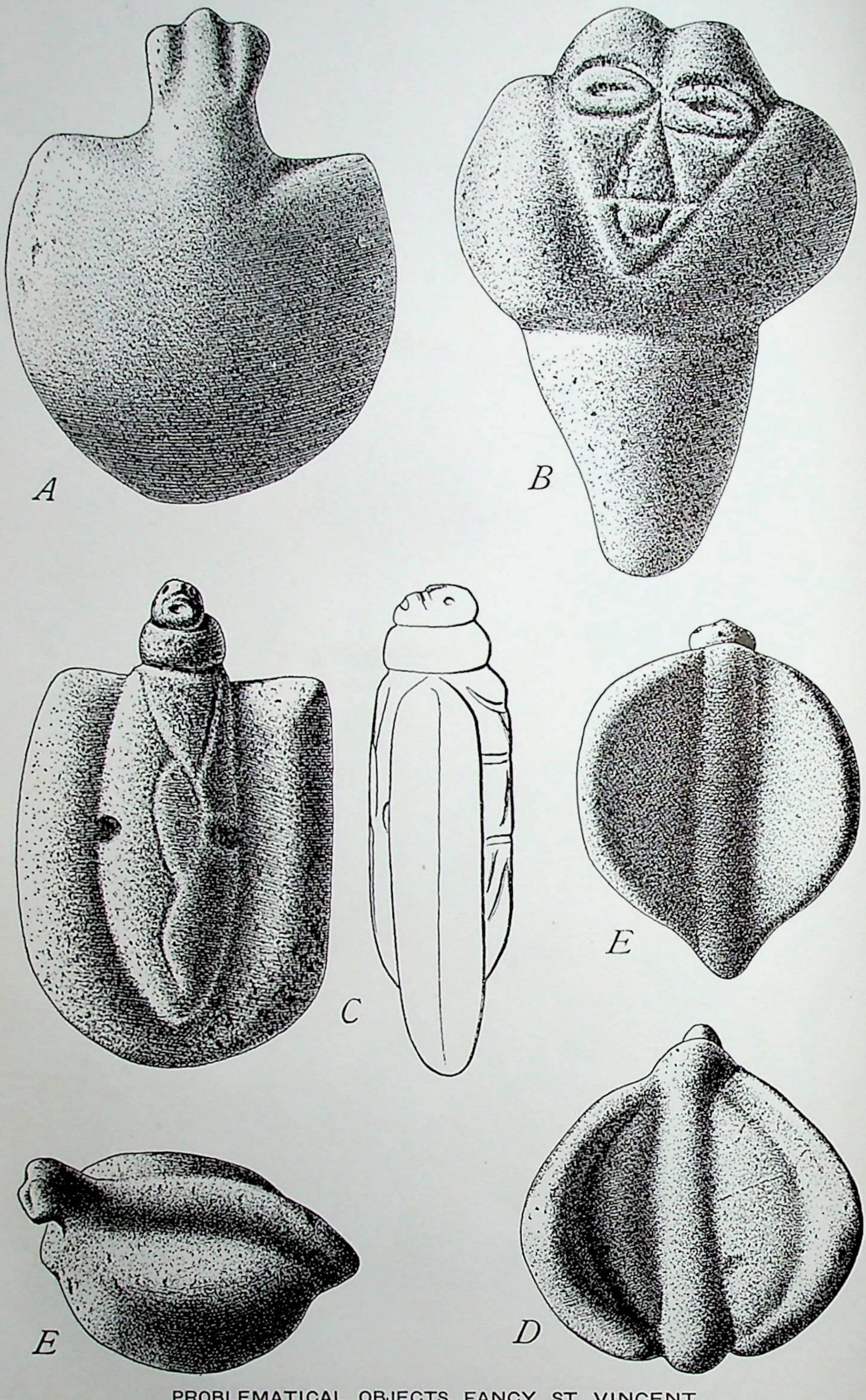
A, 3.5 inches; *F*, 3.88 inches.



A B C D E F G H I

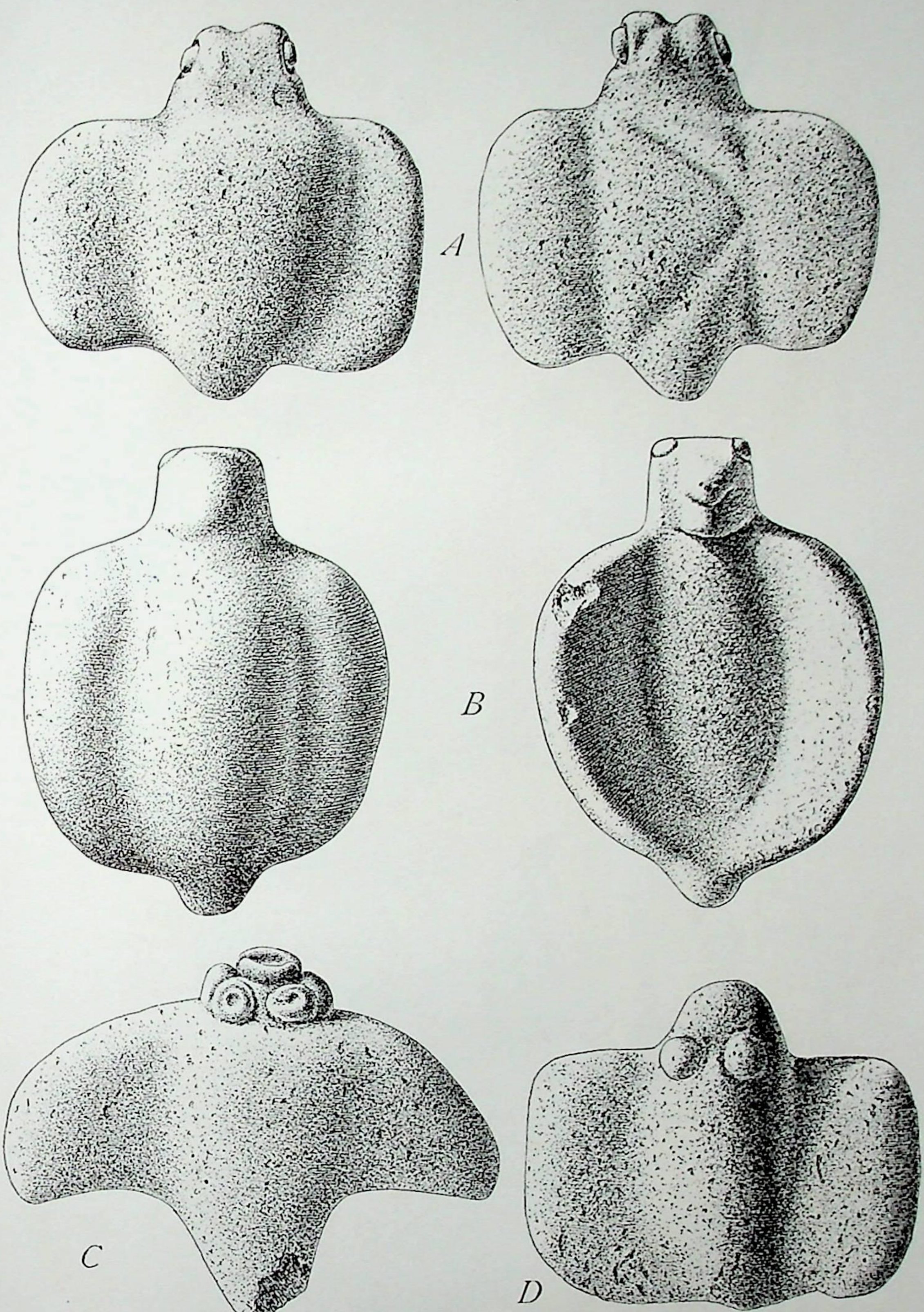
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.31 inches; *B*, 2.56 inches; *C*, 2.63 inches; *F*, 5 inches; *H*, 2.44 inches; *I*, 3.5 inches.



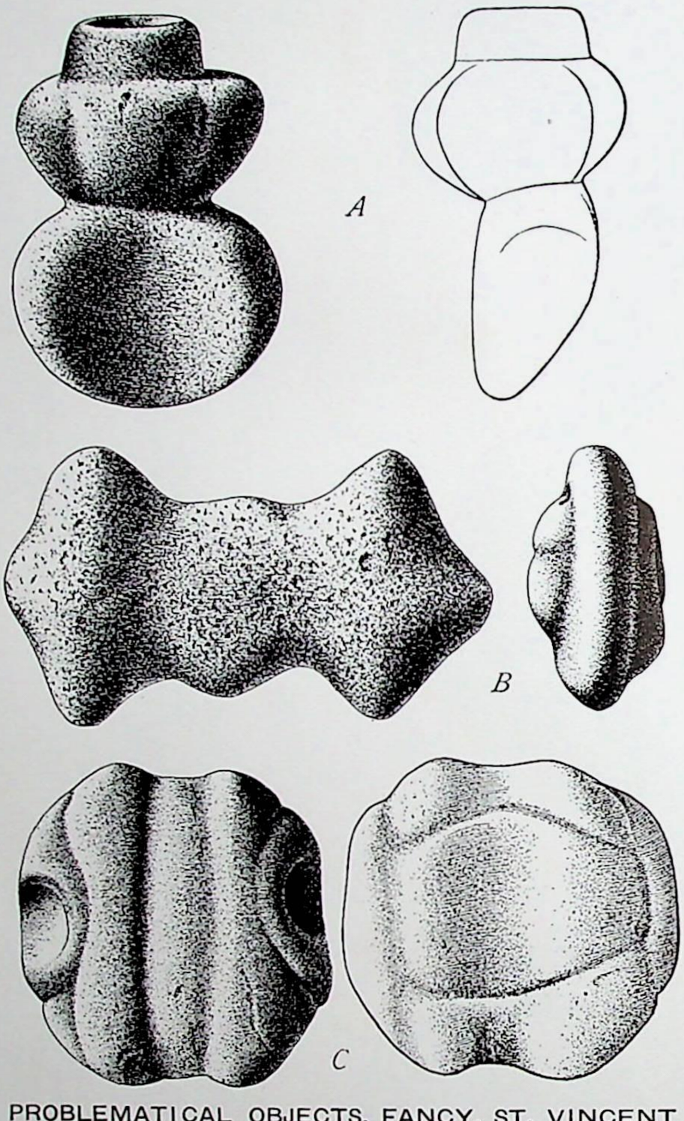
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

B, 5.31 inches; *C*, 3.56 inches; *D*, 2.75 inches; *E*, 2.75 inches.



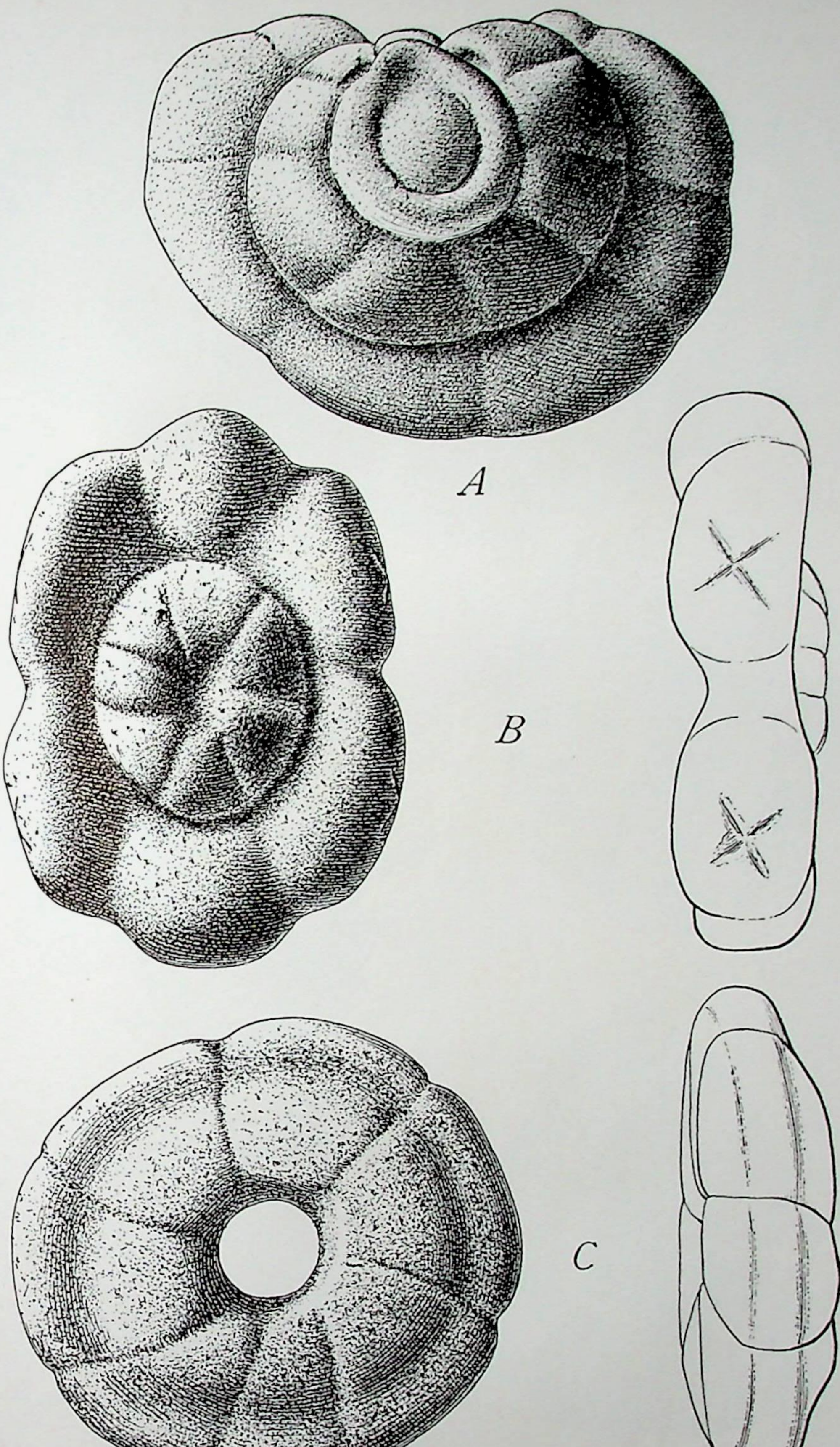
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.19 inches; *B*, 5.5 inches; *C*, 5 inches.



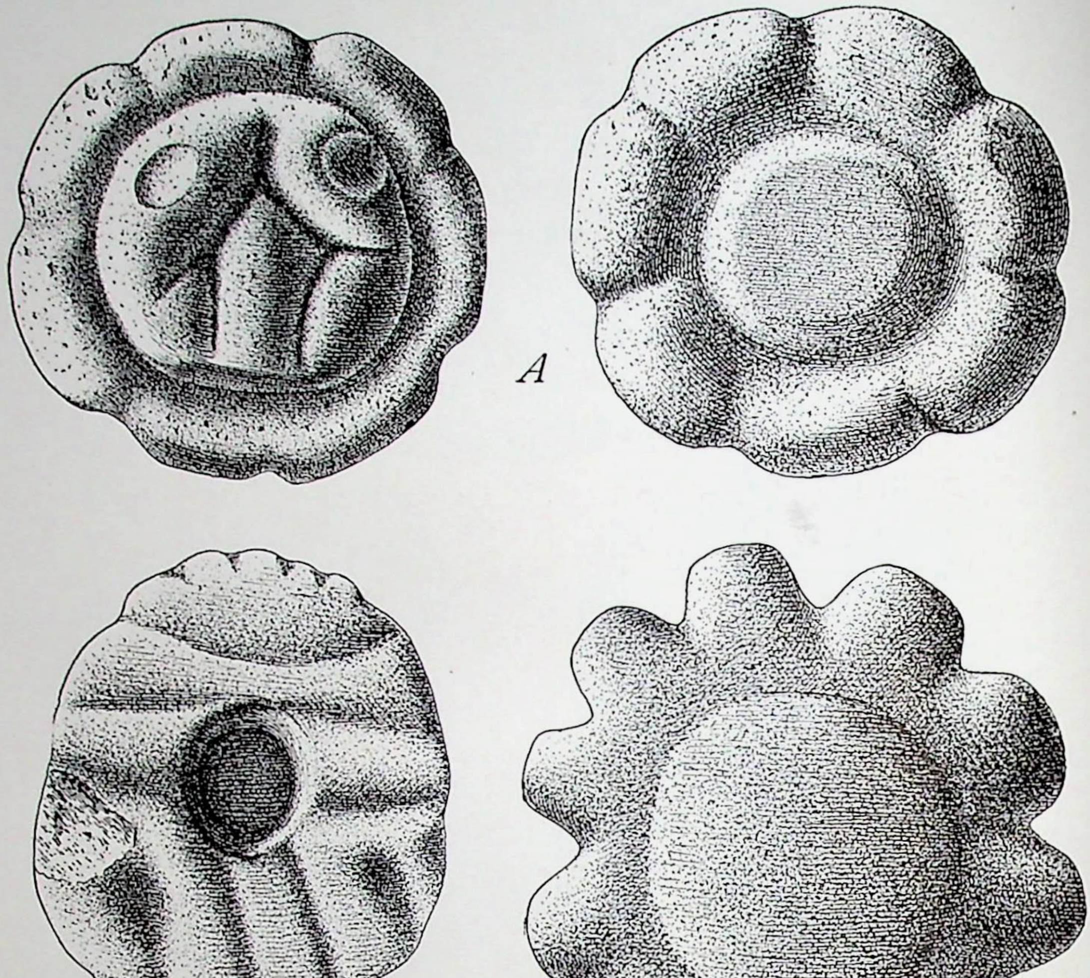
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.69 inches.



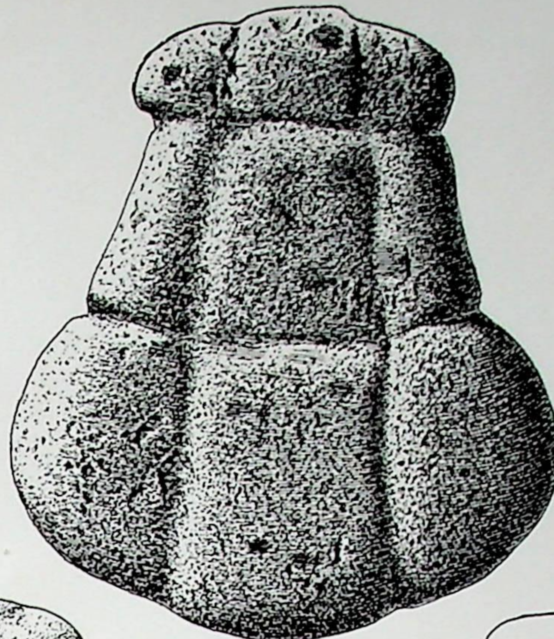
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.56 inches; *B*, 3.5 inches; *C*, 3.19 inches.

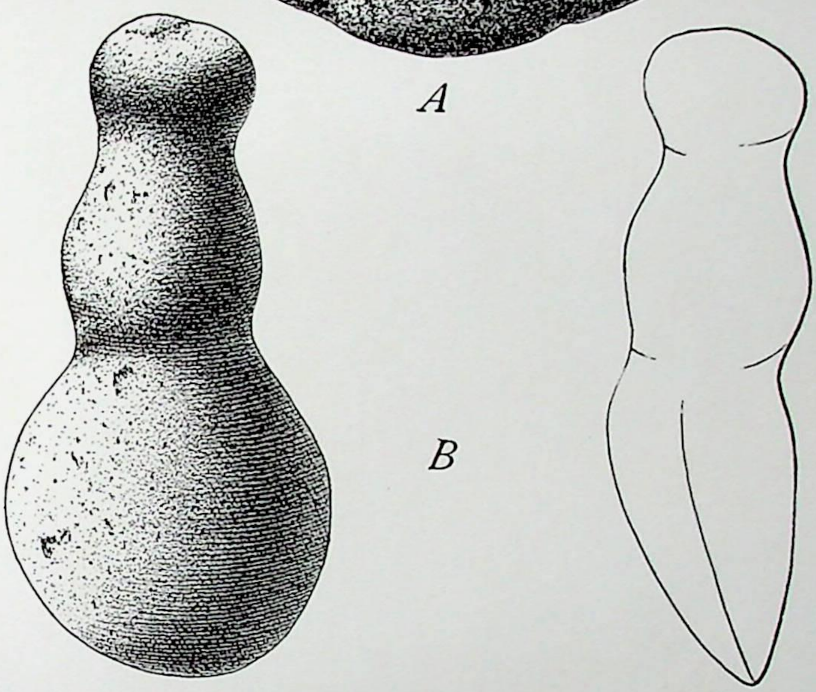


PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

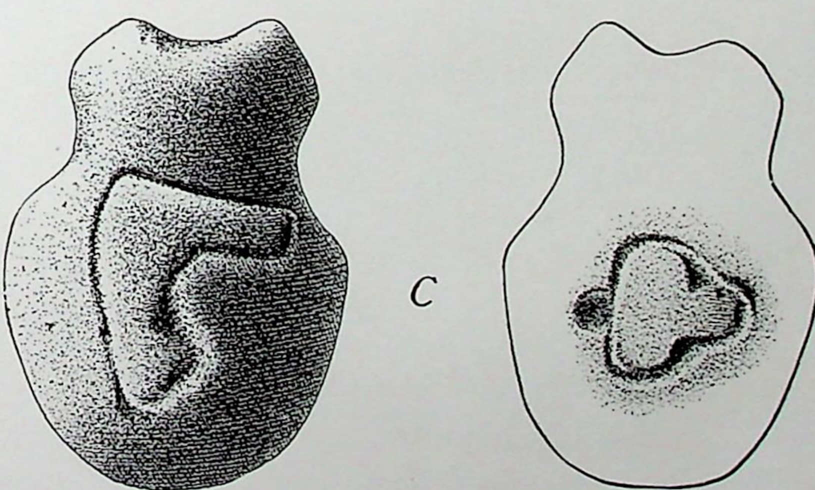
A, 4 inches; *C*, 4.75 inches; *D*, 2.5 inches.



A



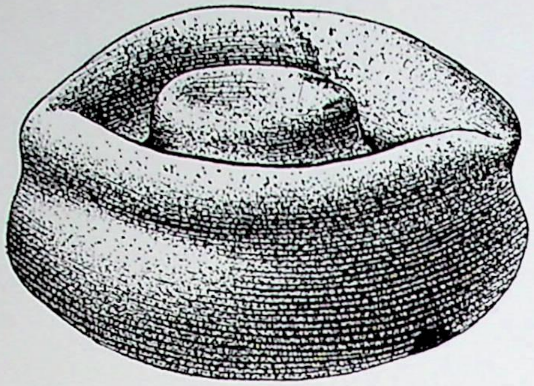
B



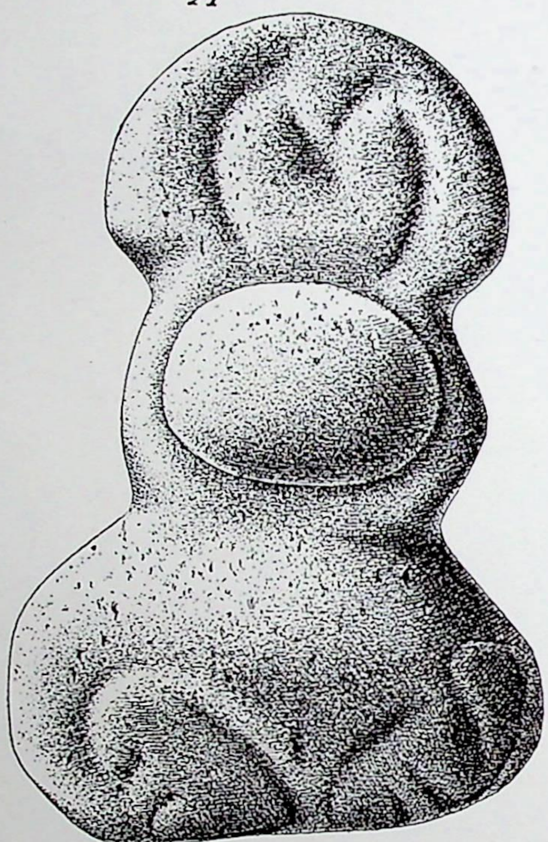
C

PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

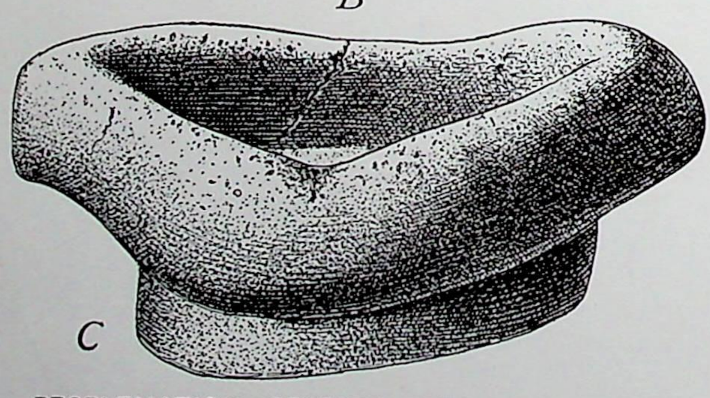
A, 5.13 inches; *B*, 3.88 inches; *C*, 2.81 inches.



A

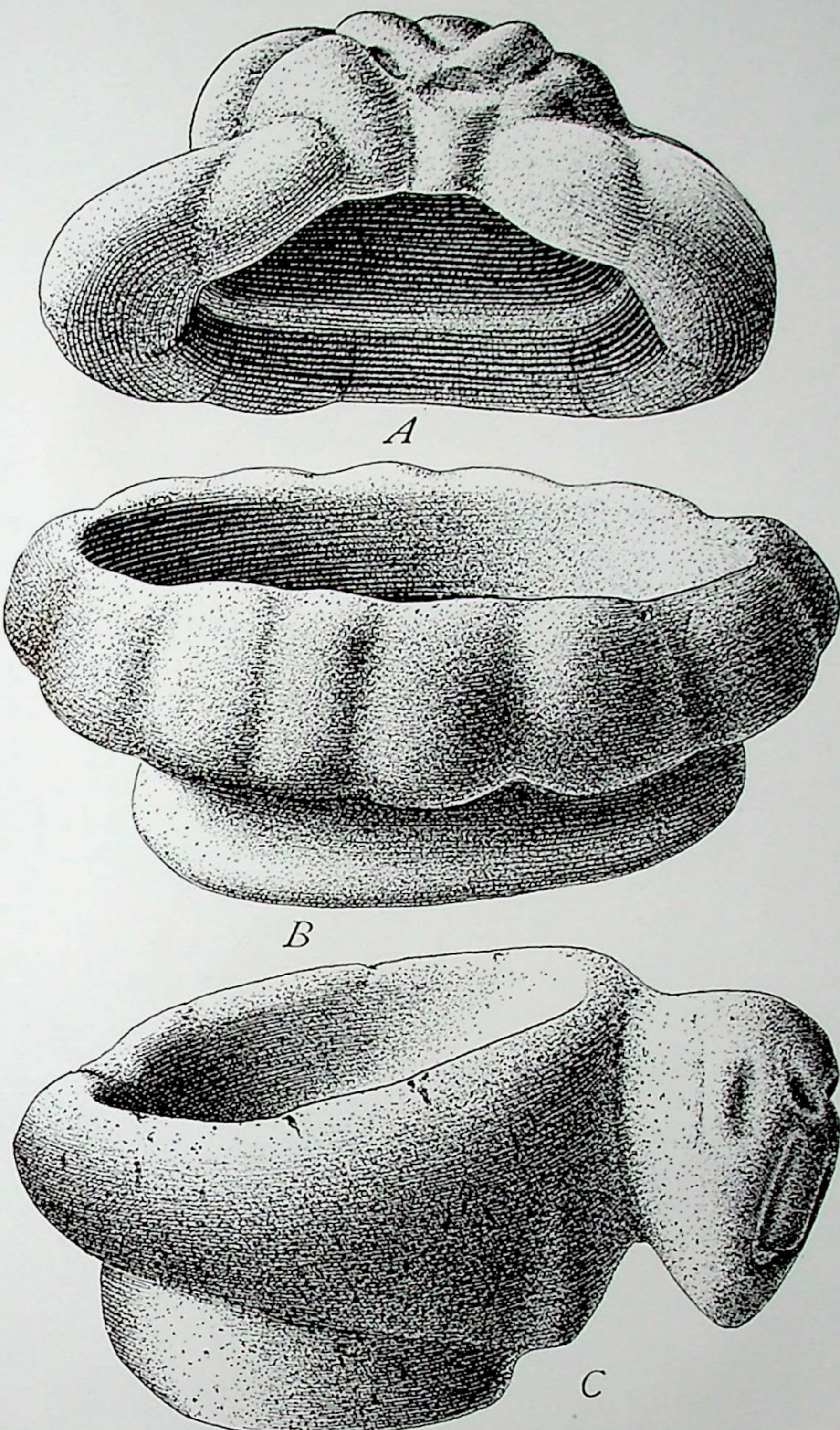


B



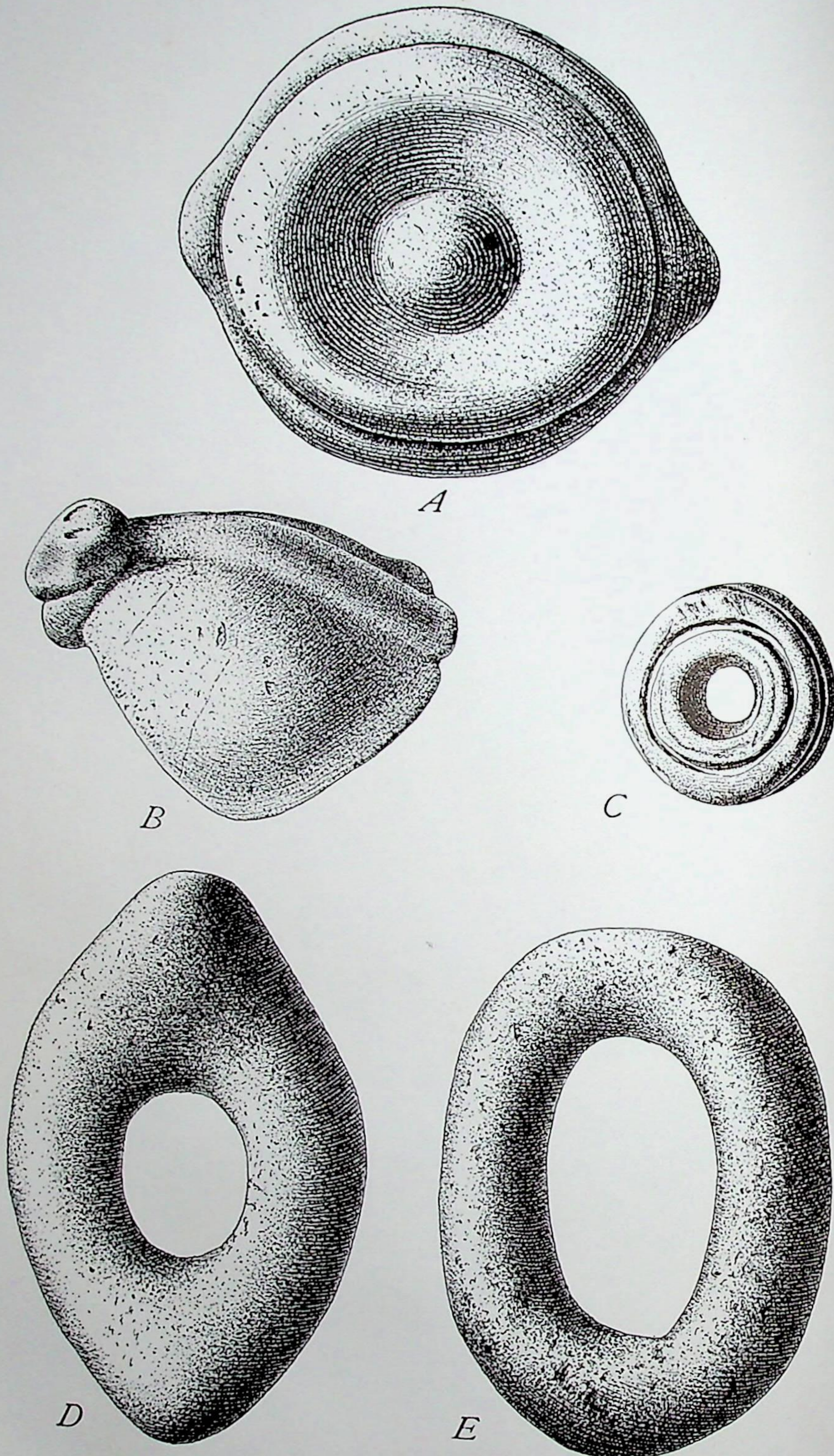
C

PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT



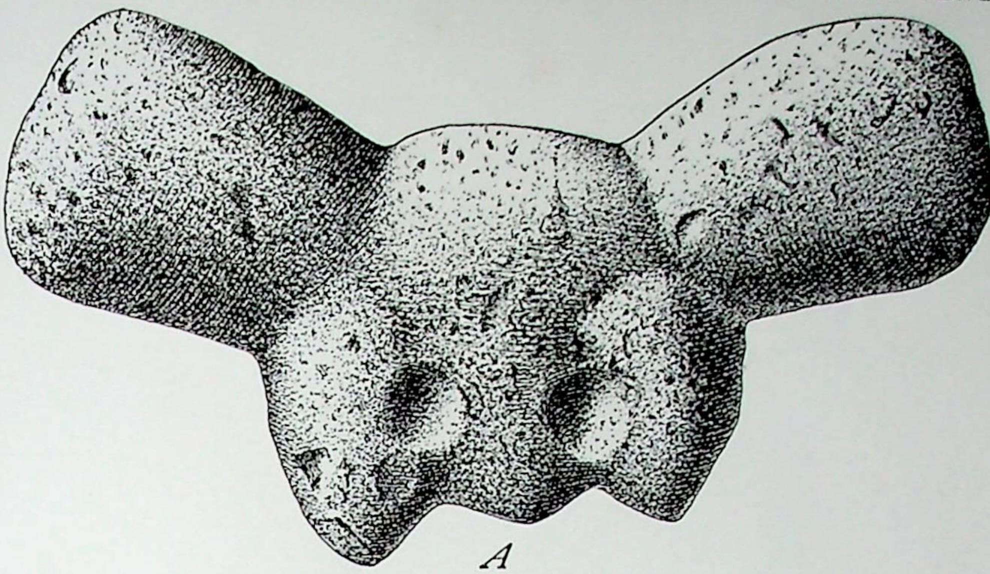
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

C, 4.25 inches.

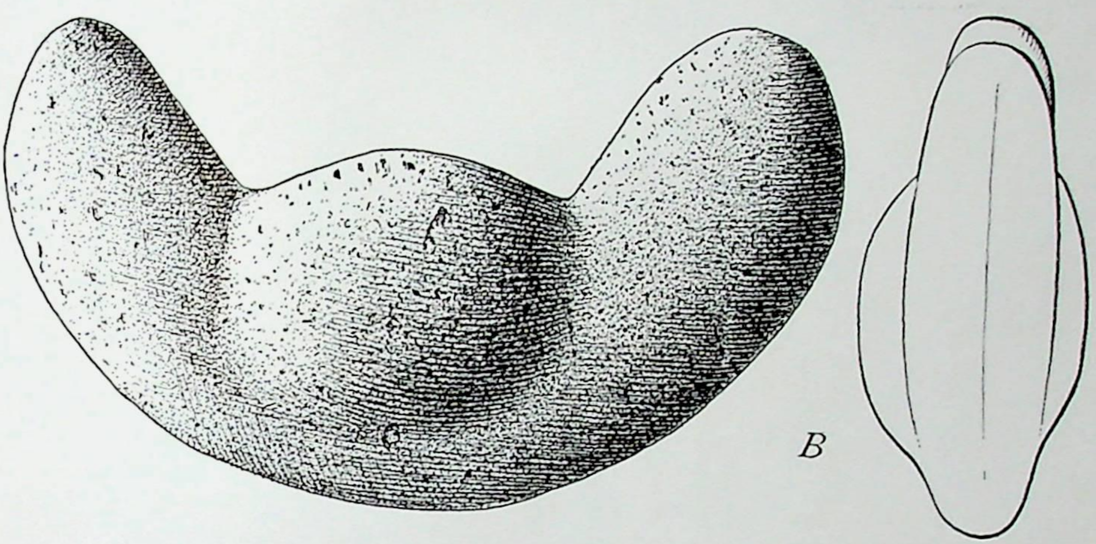


PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

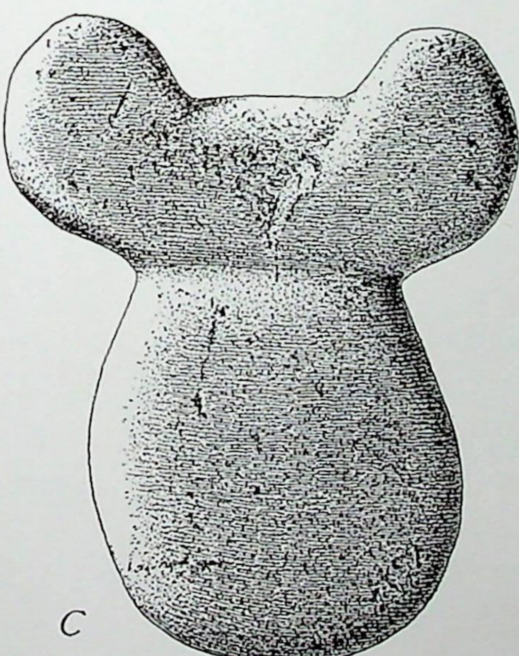
A, 3.19 inches; *B*, 2.75 inches; *C*, 1.38 inches.



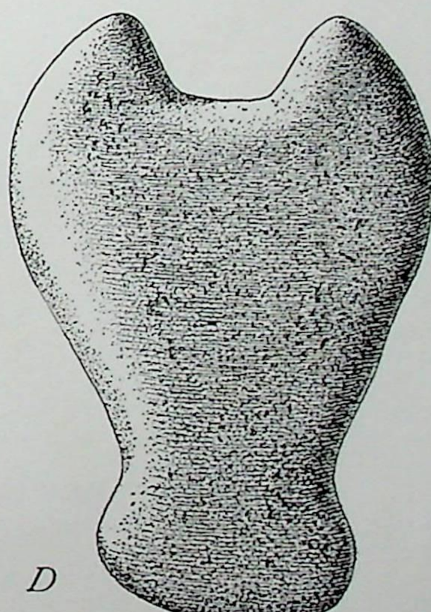
A



B



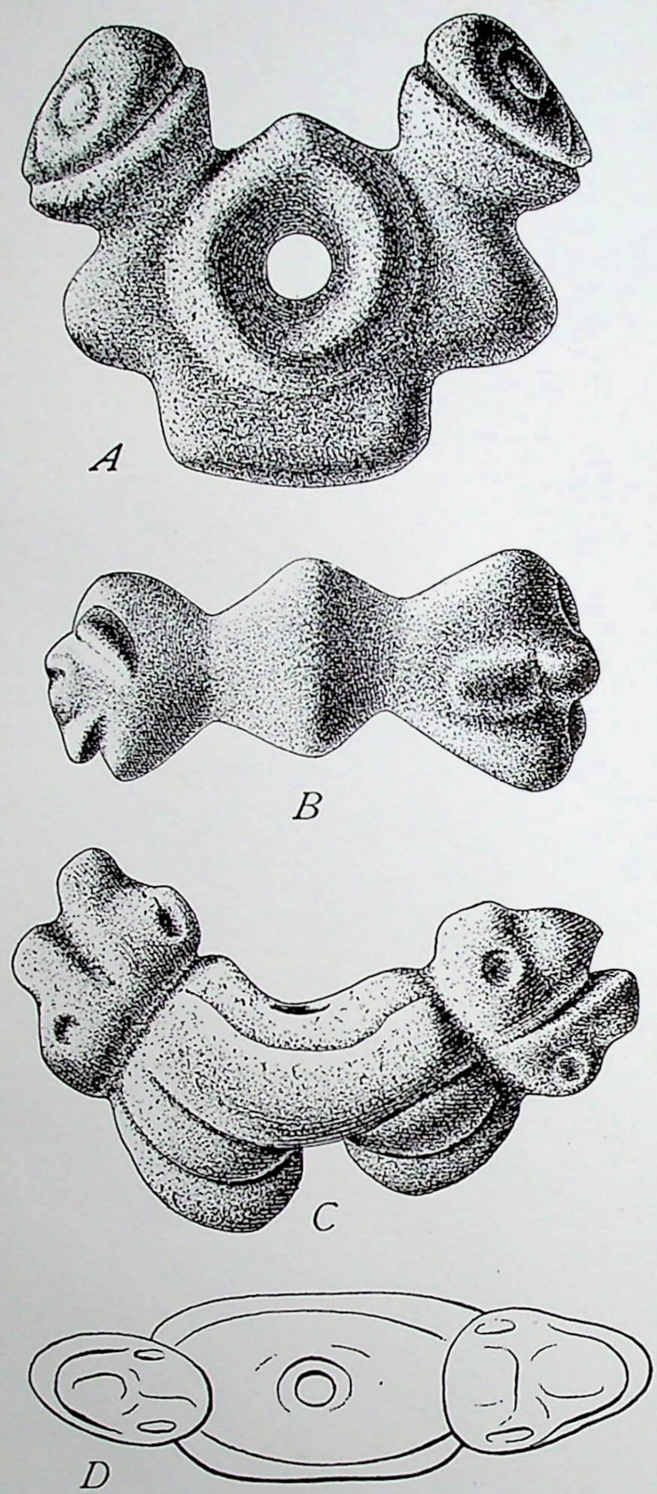
C



D

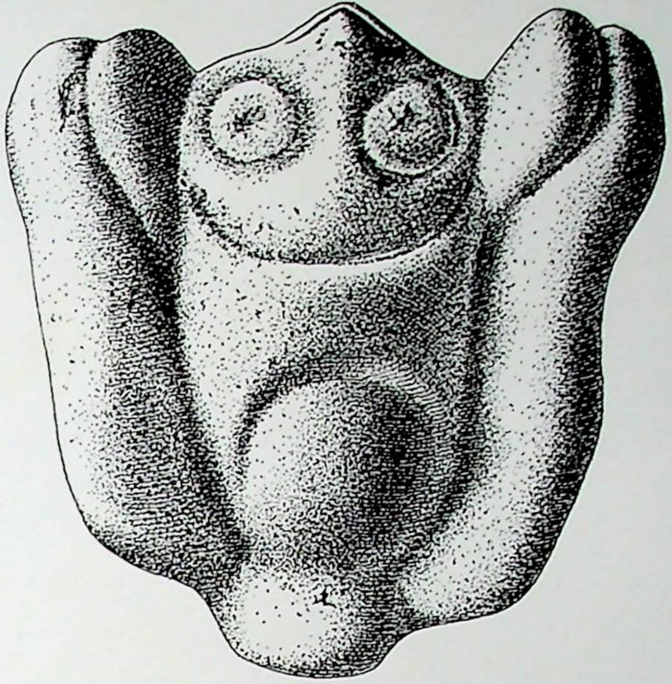
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 6.75 inches; *B*, 6.63 inches.

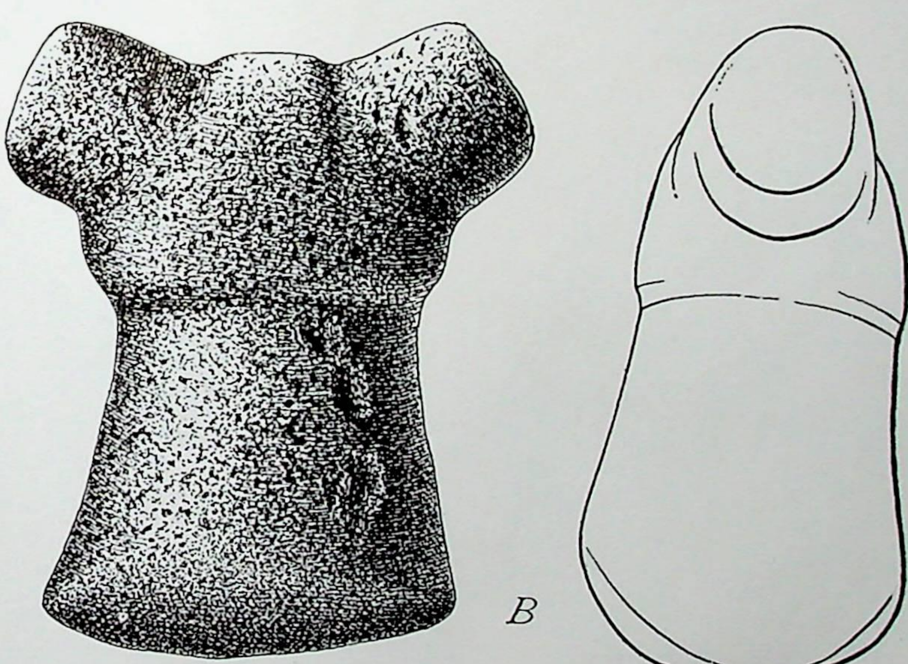


PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.25 inches; *B*, 4.06 inches; *C*, 2.56 inches; *D*, 3.19 inches.

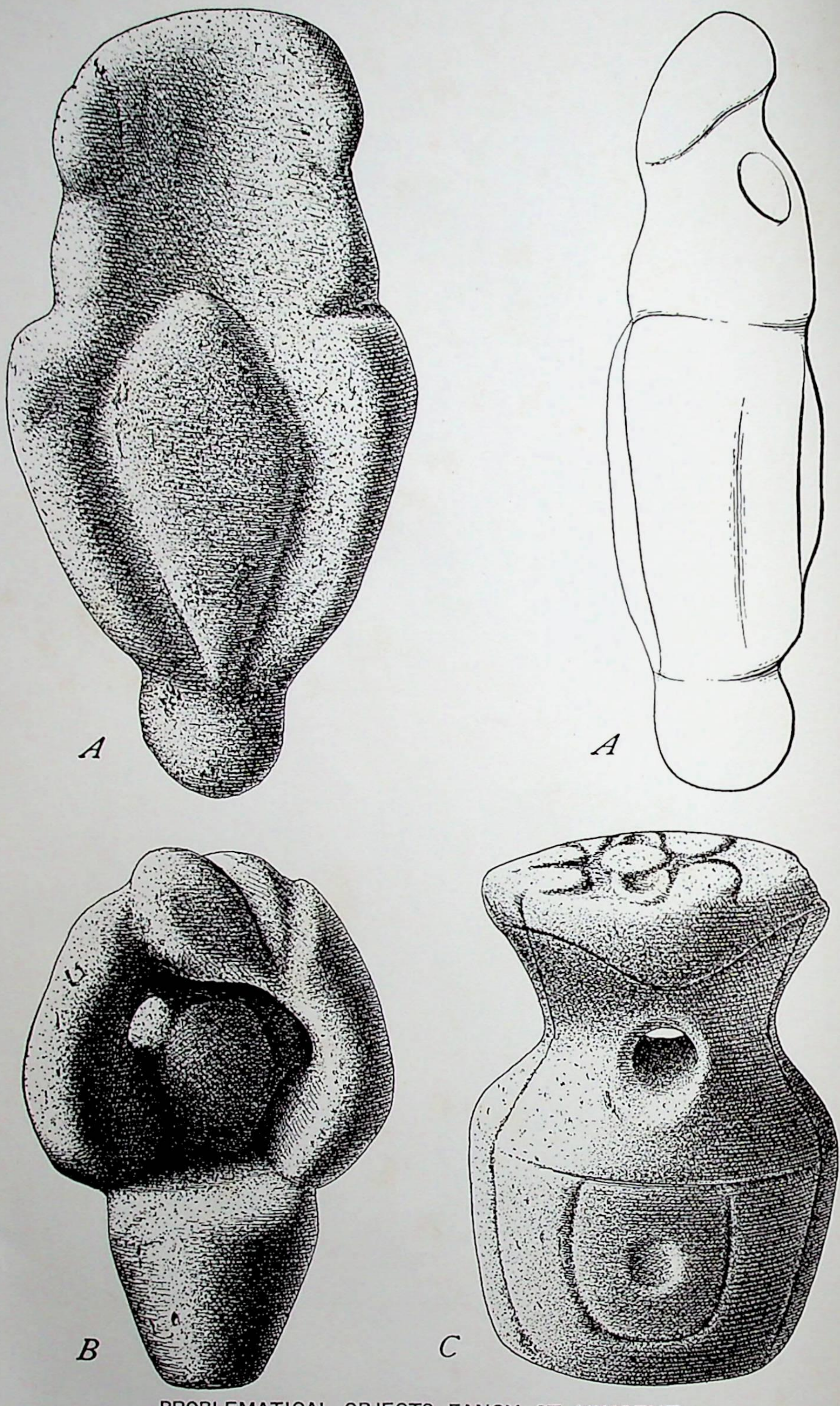


A



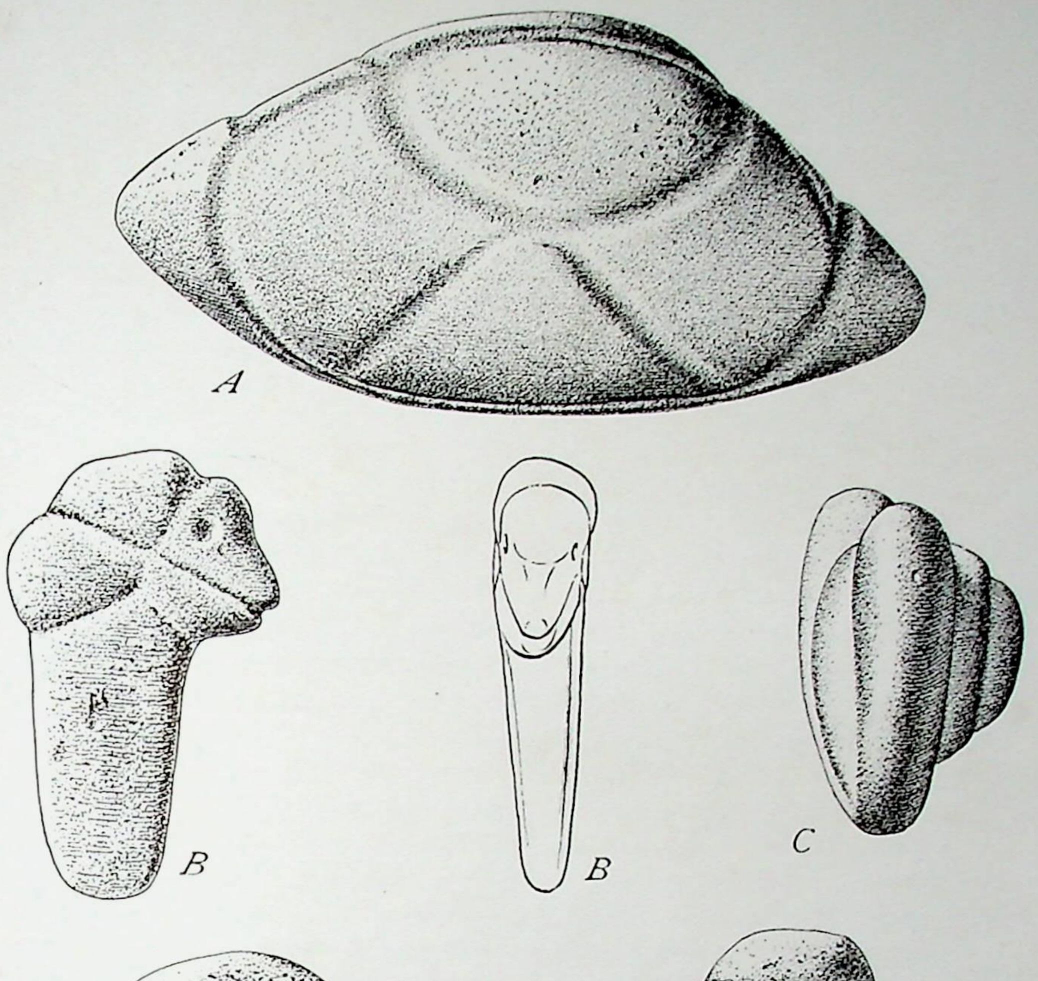
B

PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT



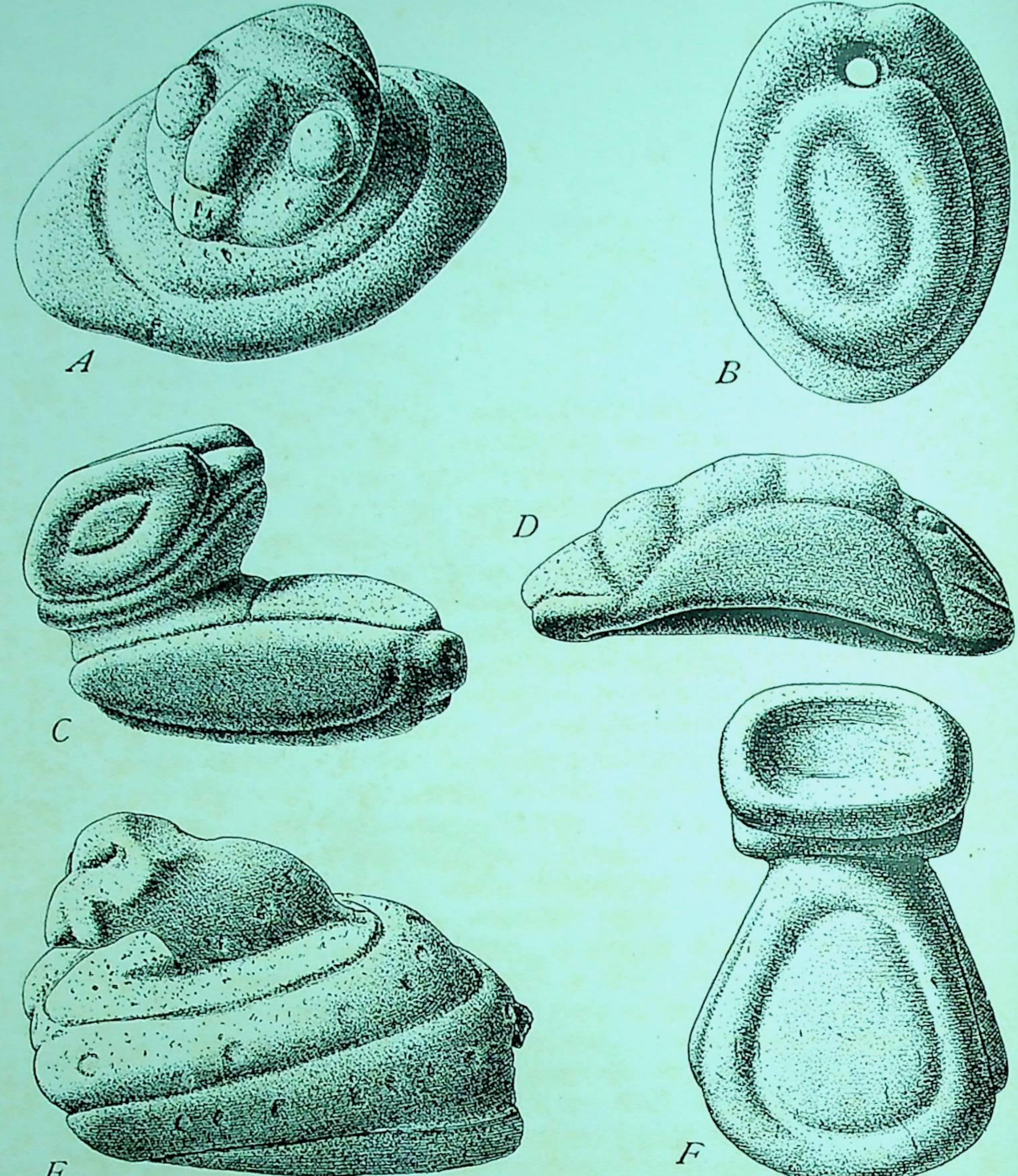
PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 3.56 inches; *B*, 3.56 inches; *C*, 3.5 inches.



PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

A, 4.75 inches; *B*, 2 inches.



PROBLEMATICAL OBJECTS, FANCY, ST. VINCENT

B, 2.5 inches; *C*, 3.75 inches; *D*, 3.56 inches; *H*, 3.19 inches.

Plate 37, *E*, represents a globular stone having a projection which is bifurcated at one end in such a way that it might easily be mistaken for an unfinished pestle.

Specimens shown in plate 37, *F*, *G*, *H*, are modifications of the preceding, possessing conical projections or extensions, one on each side. The lower edge of plate 37, *H*, like all members of this group, shows asymmetry in form. The object illustrated in plate 37, *I*, is elongated and bears two deep equatorial grooves separated by a ferrule; one-half of the specimen is oval, the other more pointed.

Plate 37, *J*, recalls certain prehistoric objects called "banner stones," often seen in collections of prehistoric objects found in the United States. The body of this implement is elongated, pointed at each end, and with an extension like a wing on each side. It reminds one of a bird or some animal form.

The shape of the object shown in plate 37, *K*, is that of a paddle, with two parts, the blade, which when seen from one side is rectangular with rounded angles, and the handle prolonged to a point. The breadth of the flat blade is about equal to its thickness; but the handle has rounded angles and the point of its union with the blade is indicated by a deep groove, forming a triangular figure, one angle of which is situated a little to one side of the middle of the blade. The use of this implement is not known, as there is not sufficient evidence to prove that it was employed as a cutting, bruising, or grinding implement.

The specimen shown in plate 37, *L*, has the form of a disk, girt with two grooves, one of which incloses a rounded projection occupying the central part of the upper hemisphere. The shape is symmetrical, the surface convex, but there is no evidence visible showing its use as a pounding or grinding implement.

The form of the stone objects shown in figures *M*, *N*, is unusual, but the objects are artificial, evidently belonging to the same group as those referred to above.

Some of the specimens when found were in a rather soft and pliable condition and had to be carefully handled until they were dry. As corroboration of their aboriginal origin it should be pointed out that some of the simpler forms of these objects resemble closely stone objects from the island of St. Vincent. This is more especially true of their likeness to certain ax-formed specimens in which a blade, poll, and surrounding ridge is well marked. Some of the bowls also have lugs that recall bowls and cups of burnt clay, while the heads have a distant resemblance to the heads of pottery objects. Some of them are symmetrically formed and covered with complex ornamentation of incised spiral and rectilinear forms. Certain motives are prominent and modified in a way that shows skill. They are remarkable enigmas and most difficult to interpret.

It is hardly necessary to consider individually each of the many forms of these strange objects of the Heye collection, and almost impossible to make a satisfactory classification with hard and fast divisions separated by strict lines of demarkation. In a general way it may be said that the collection contains imitations of animal heads, vessels of various forms, circular-lobed disks, and objects like mortars with animal heads appended on one or both margins, recalling in that respect pottery bowls or vases.

Among a great variety of animal heads of grotesque form several specimens distinctly resemble human heads, and among animal forms the bird, turtle, or some reptile is recognizable, but the resemblance is so aften so imperfect that close comparison with stone or pottery heads from St. Vincent and other West Indian islands is very difficult. They are highly conventionalized productions. Some of them have a close likeness to the carapaces of crabs and one or two are fish-like in form. Lateral extensions on the borders of others recall wings of flying animals. These lateral extensions impart a triangular form to the object when seen from above, the body being represented by an enlargement with a well-defined head with mouth and eyes at one end. A quite distinctive form is circular or oval with lobes separated by depressions extending from center to circumference. In many these lobes are regular, but in a few one or more of these bodies are absent, making an asymmetrical form consisting of a central circular region around which is grouped a ring of enlarged bodies. These bodies often do not extend completely around the periphery, imparting a more or less U shape to the object. The number of lobes varies; several have seven or eight, others a smaller number.

Several specimens have a form that might well be likened to the whorls of a seashell, consisting of a coiled body terminating in a spine with an open end such as occurs in the ordinary conch shell or other univalve mollusca. Comparisons with animal forms are, however, not very close, for the objects are too crude to allow accurate comparisons.

POTTERY

The pottery from St. Vincent, Carriacou, Grenada, and other islands of this culture center is judged largely from fragments; no whole specimens occur in known collections from these islands. These fragments, however, especially those from Carriacou, one of the Grenadas, are characteristic and have distinctive features that readily separate them from those of Trinidad, St. Kitts, Porto Rico, and Santo Domingo. The larger number of pottery fragments from St. Vincent belong to the so-called red ware, which there is every

reason to suppose was painted with red pigment. In numerous instances this paint disappears if the fragment is moistened.

Among different forms of pottery indicated by the fragments may be mentioned bowls, bottles, cups, griddles (flat plates), vases with or without snouts like the so-called monkey jars or modern teapots. As is the case with prehistoric pottery from the other West Indies, there are many forms of effigy vessels and a considerable number with rims adorned with animal heads serving as handles or legs. There are several fragments of the bases of vessels or basal clay rings, which, being more massive than the remaining walls of the bowl, remain unbroken with fragments of the bowls. One of these is shown in plate 62, *A*, which, unlike the majority, is decorated with an incised zigzag figure.

While the lips of the majority of these vases and bowls which are not decorated with heads are plain or without distinctive markings, certain of them are decorated with a succession of impressions evidently made with the thumb-nail or finger when the clay was soft. One fragment (pl. 62, *B*) has a series of holes around the rim, evidently made with a round stick or bone. Nothing like a *roulette* was found, although there are several clay stamps. By far the largest number of bowls have clay heads attached to the rim, placed either vertically or horizontally, according to the shape of the vessel, the latter being mainly confined to certain griddles or flat plates evidently used in frying cassava bread, so placed that the cook may handle a hot dish without burning her hands.

Plate 62, *C*, shows a fragment of pottery with a small attached snout similar to those found on modern vessels from St. Kitts and Nevis.[69] A double bowl, one of the component parts of which is unfortunately broken, is illustrated in plate 62, *D*. This object has a flat base, thick walls, and is undecorated. A hole leading from one bowl to the other characterizes this object. Its size and general appearance suggest a receptacle for paints, and it may possibly have been for red dye used in painting the body, as recorded in the early accounts of the inhabitants of the Lesser Antilles.

The relief decoration shown on a fragment of a bowl (pl. 63, *A*) is typical of the style of ceramic decoration constantly employed by the prehistoric Antilleans. The fragment represents a section of the rim, the ornamentation being on its outer wall.

The decorated handles of Grenada bowls are more massive than those of Trinidad, and are commonly two in number, situated on the end of the longer diameter near the rims or the sides. Plate 63, *B*, illustrates the form of one of these handles and a fragment of the vessel, upon which is the head of some animal, possibly a bird. There

[69] The ancient potters' technique still survives in these islands.

are several similar fragments in the Heye collection. The handle of plate 63, *C*, is decorated with a head bearing a toothed structure that may be likened to a bird's head. The representations of the eyes in this head are quite different from those of other birds' heads. In plate 64, *A*, we find one of the flat handles of a vessel modified into a head of peculiar shape. This figure shows the head as seen from above, and from a section of the rim it is evident that the vessel to which this head was attached was a flat circular platter of clay. This was, in fact, the handle of one of those flat dishes or griddles on which the natives formerly fried their cassava cakes—a cooking utensil now replaced by an iron plate.

The square, angular head of this specimen is unlike those already described, and has a peculiar incised decoration not common in West Indian pottery. In plate 64, *B*, we have another handle of a vessel, from the island of Grenada, which is modified into a head. Although this specimen is rather roughly made, the outlines of mouth, eyes, and nose are well indicated by incised lines. Plate 65, *A*, represents another handle of a cooking dish like a head, seen from above. The presence of eyes and mouth and a circle commonly found on the middle of the foreheads of animals, which is one of its most striking features, leads to the identification of this as a head of an animal. This head is surrounded by a row of holes which may have been either for insertion of feathers or purely decorative.

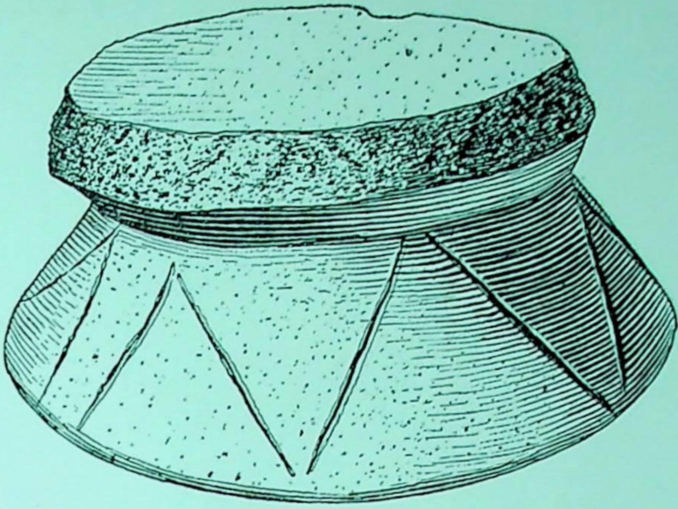
In plate 65, *B*, is shown a comparatively large fragment of the rim of a vessel, in which the face or head has well-made eyes, nose, and mouth. The meaning of an appendage on each side of the head of this specimen is not easy to interpret. These appendages occur in pairs—one pair on the forehead, the other in the position of the ears. It is not unlikely that they represent the two arms or legs of an animal form, or are appendages of a human being.

Plate 65, *C*, represents the handle or lug of a flat cooking dish, evidently a griddle.

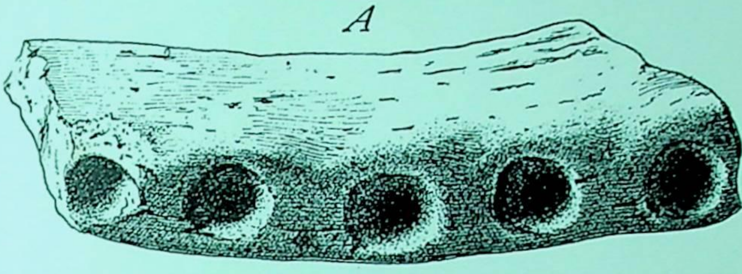
Various forms of handles modified into heads are shown in plate 66, *A*, *B*, *C*. They are parts of griddles or clay disks used in cooking, and while differing in details appear to represent like animals. The effort made by the artist to enlarge the size of the handles by an extension of the tops of the head or prolongation of the snout imparts a ludicrous expression to the faces of two of these figures. Both of these are large fragments of flat, shallow vessels to which they were formerly attached.

A unique form of pottery rest with a face on one side, and various other relief designs, appears in figure 11.

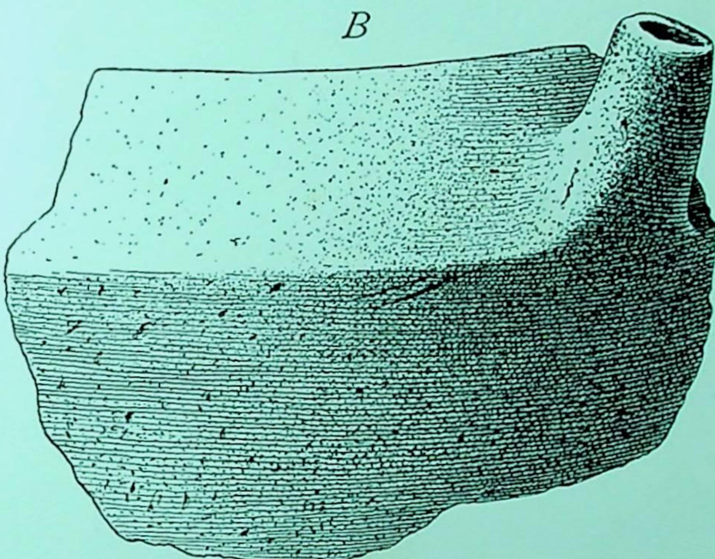
The burnt clay head, plate 66, *C*, evidently broken from a bowl or other piece of pottery the shape of which is unknown, has a project-



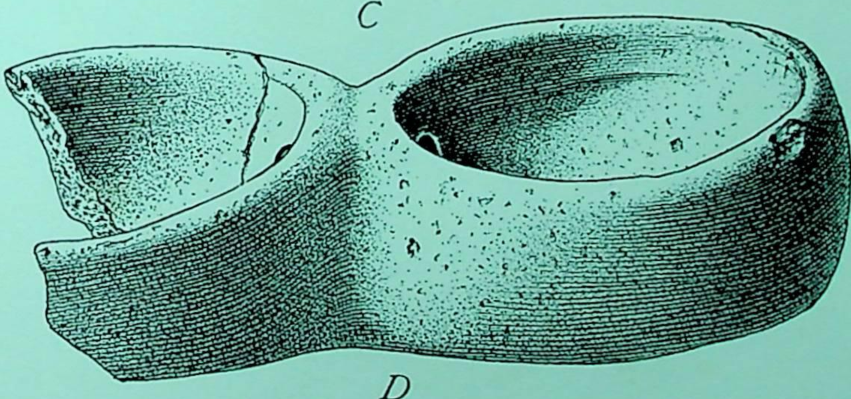
A



B



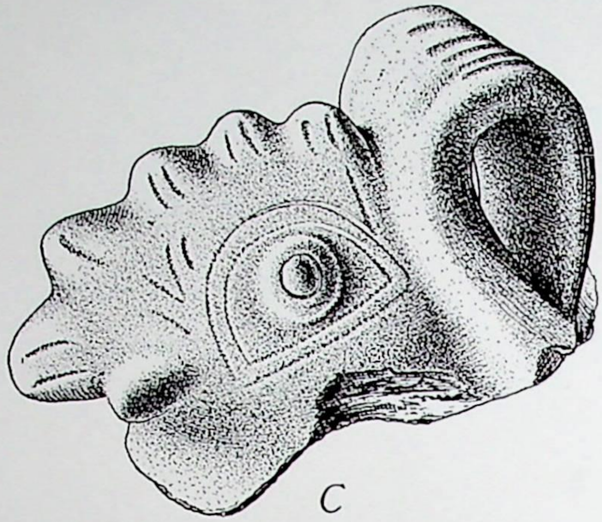
C



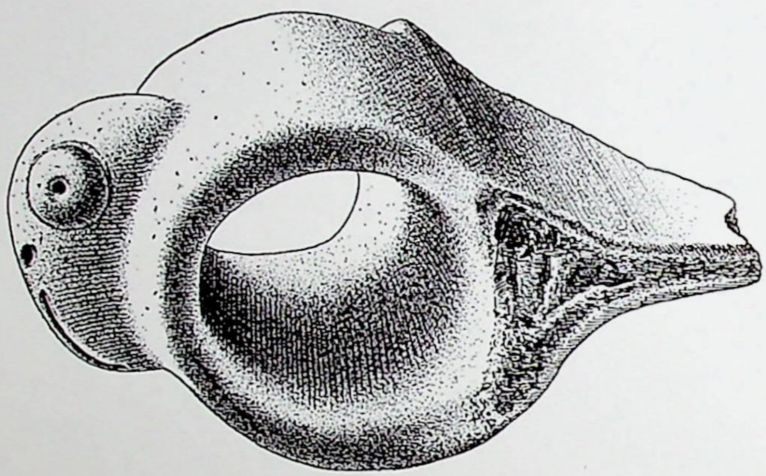
D

POTTERY, CARRIACOU

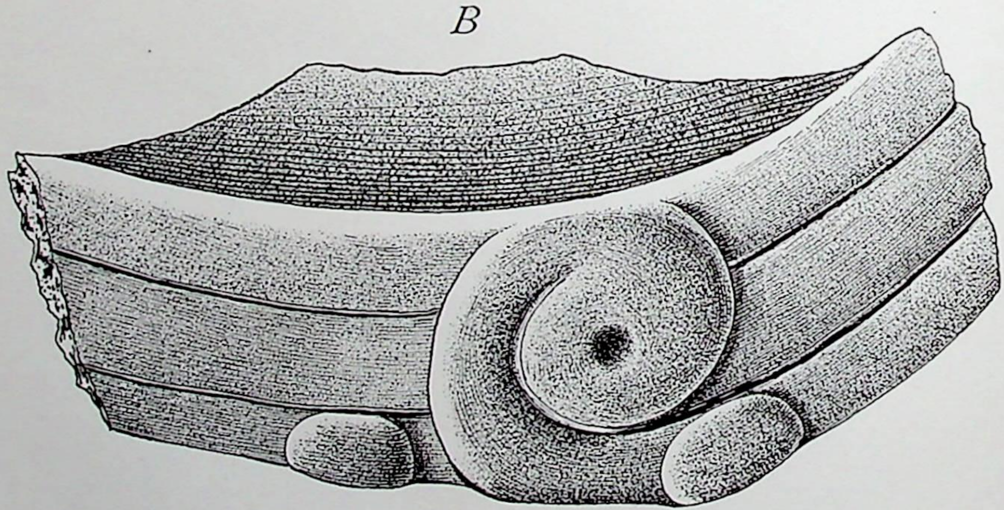
A, 3.4 inches; *D*, 4.25 inches.



C

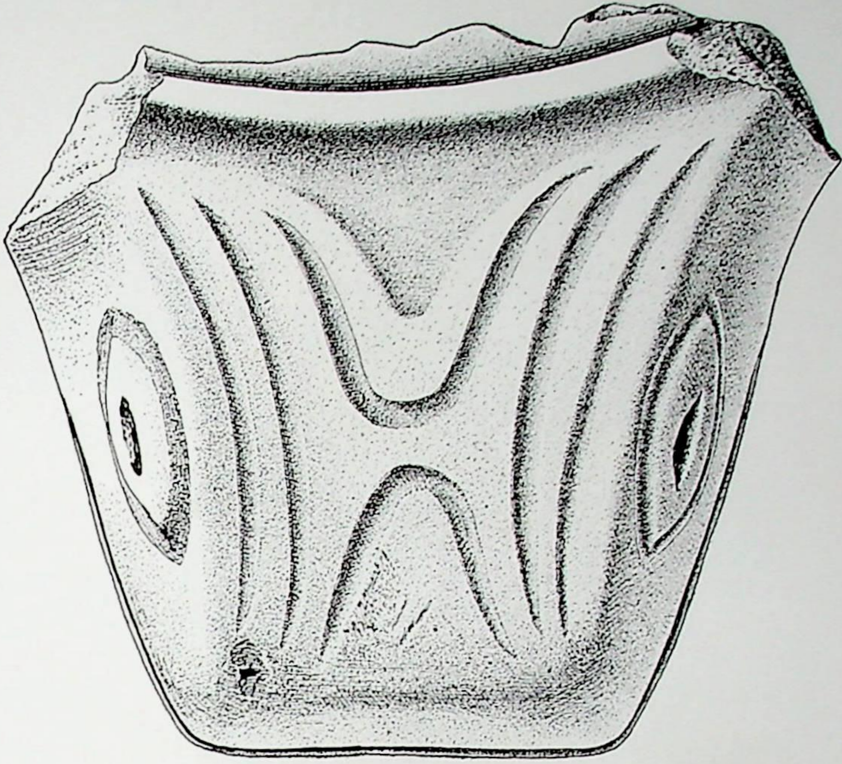


B

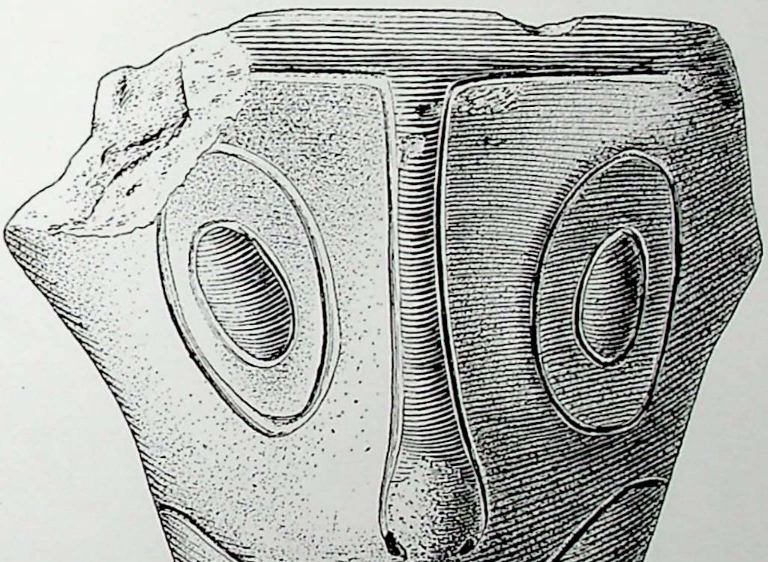


A

FRAGMENTS OF POTTERY, CARRIACOU

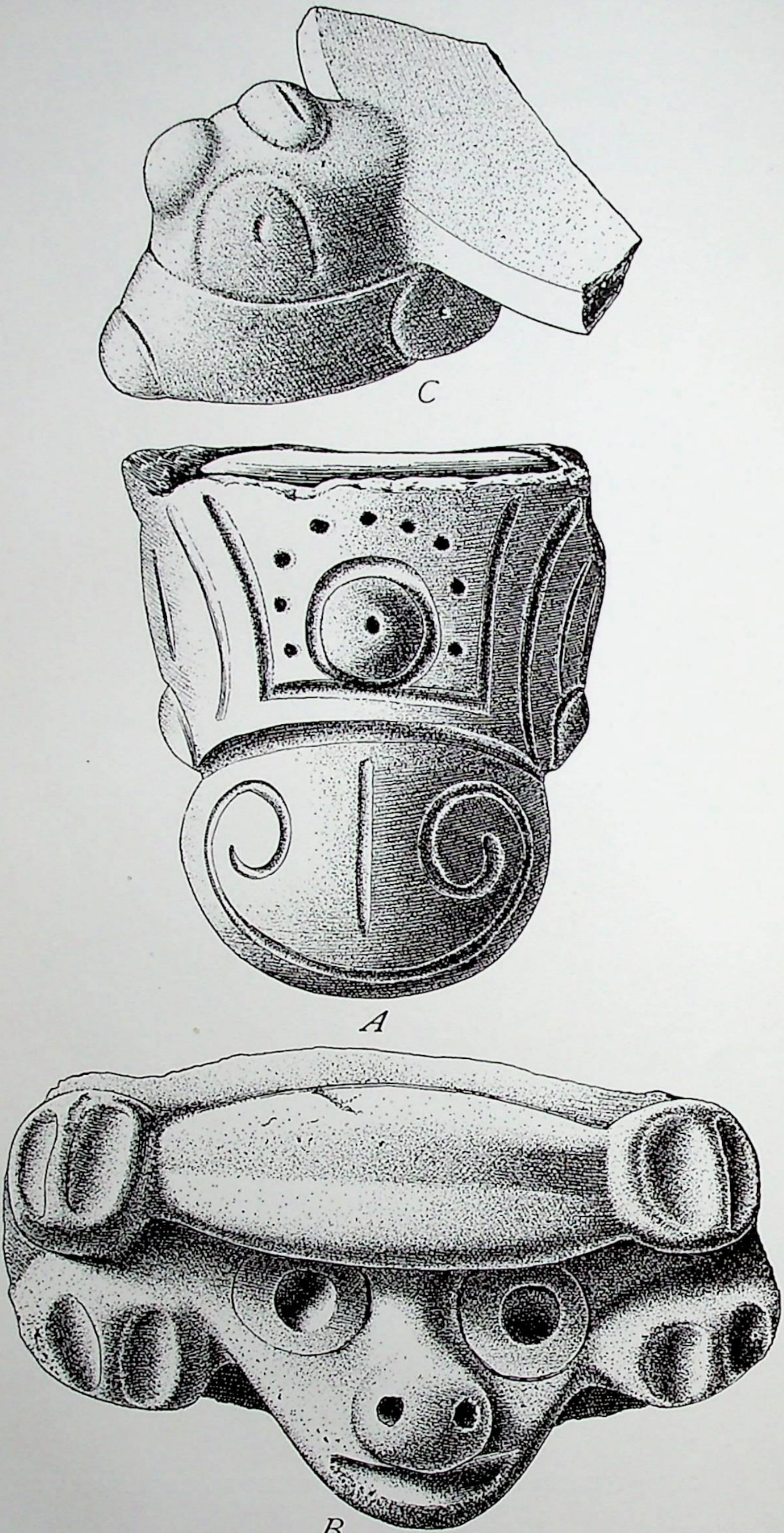


A

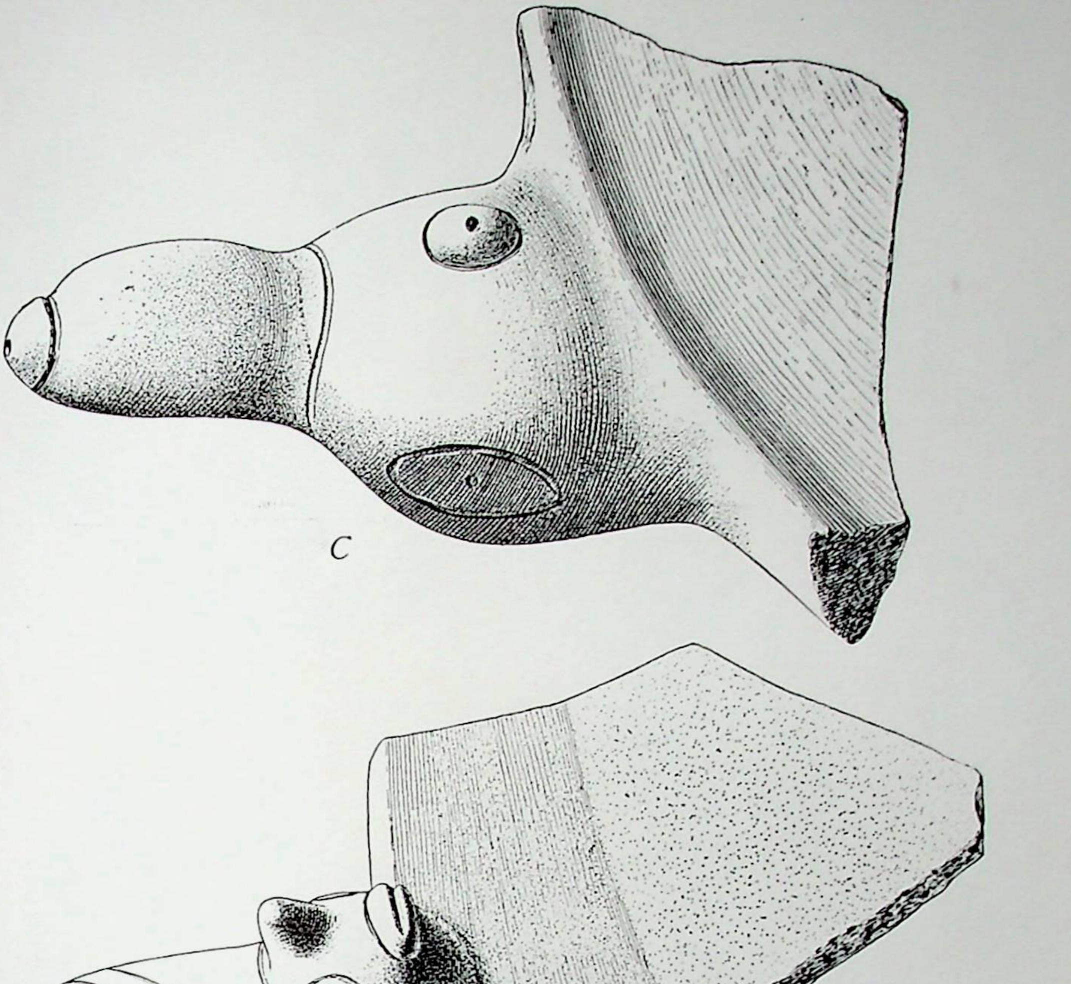


B

CLAY HEADS FROM POTTERY OBJECTS, CARRIACOU

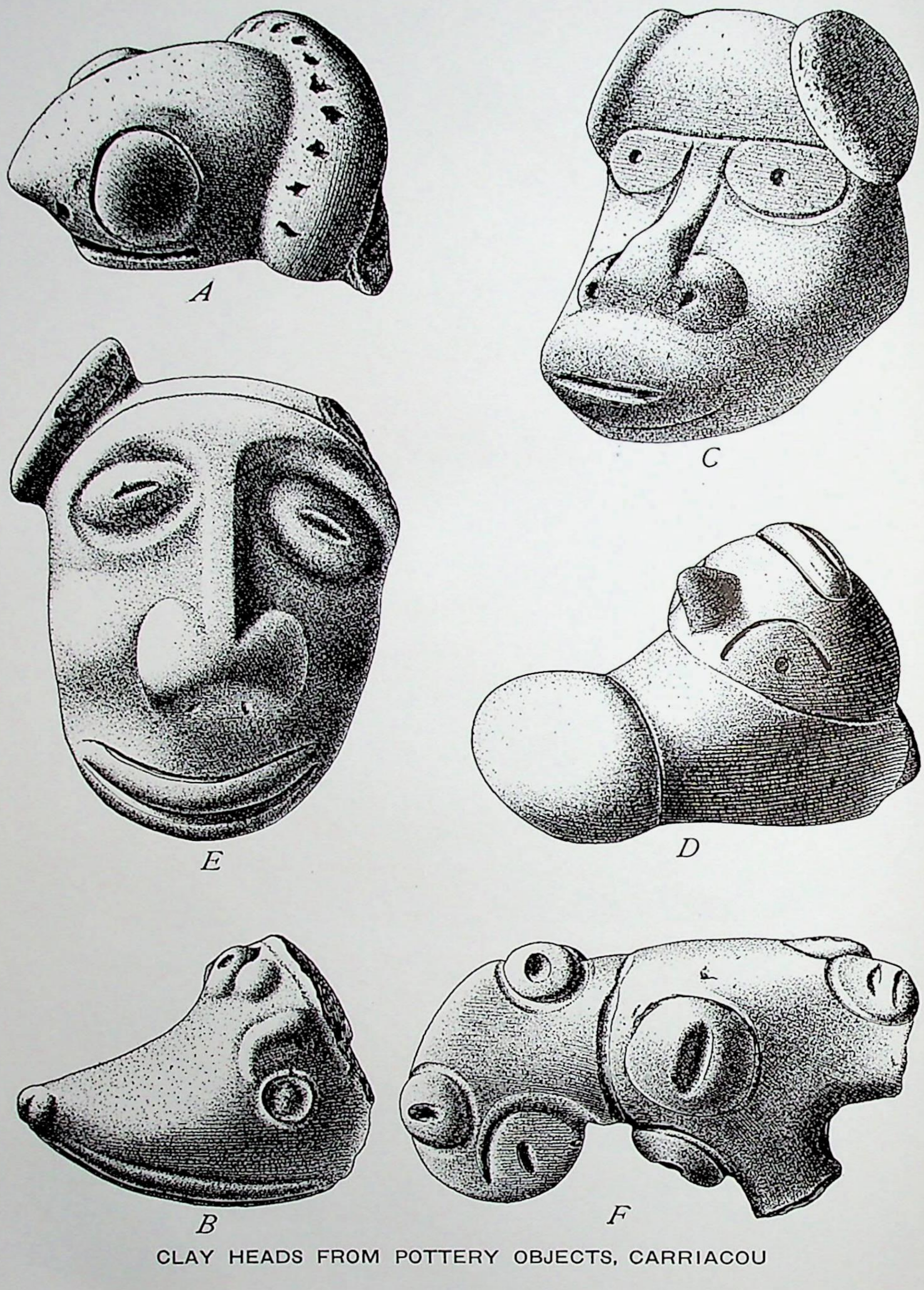


CLAY HEADS FROM POTTERY OBJECTS, CARRIACOU

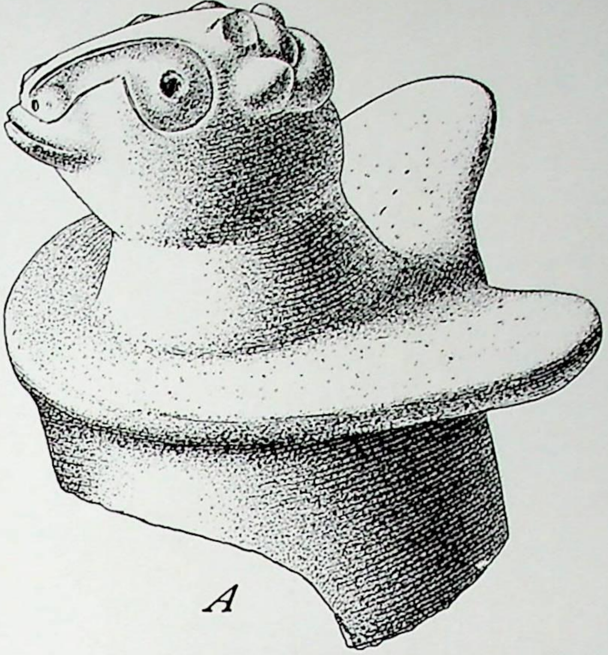


CLAY HEADS FROM POTTERY OBJECTS, CARRIACOU

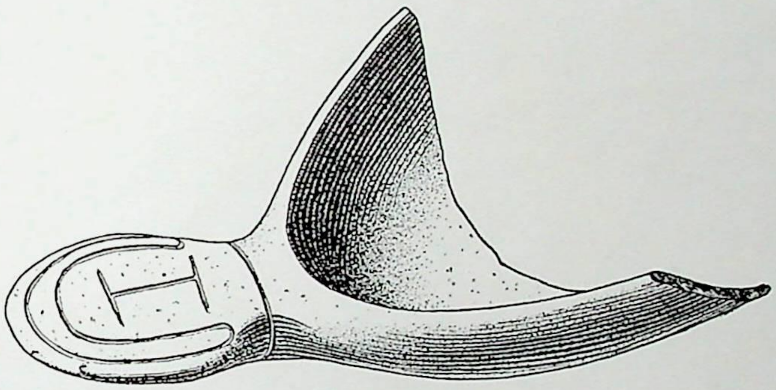
A, 5.44 inches; *D*, 3 inches.



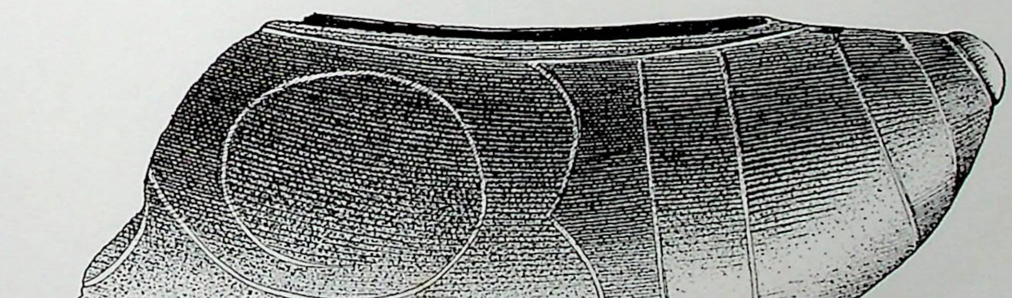
CLAY HEADS FROM POTTERY OBJECTS, CARRIACOU



A



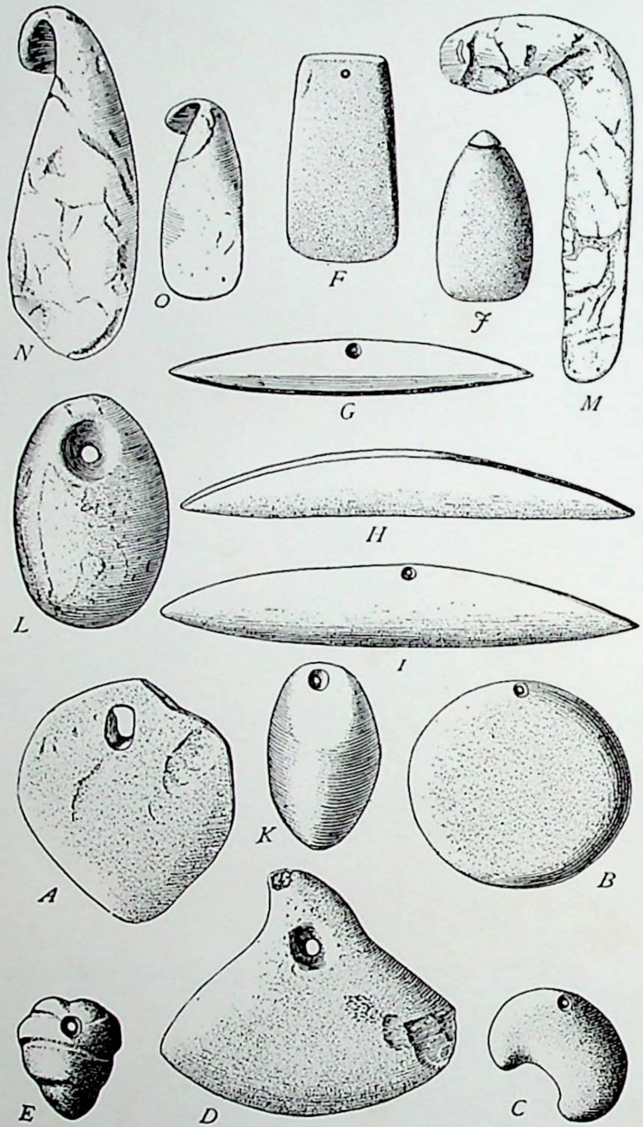
B



C

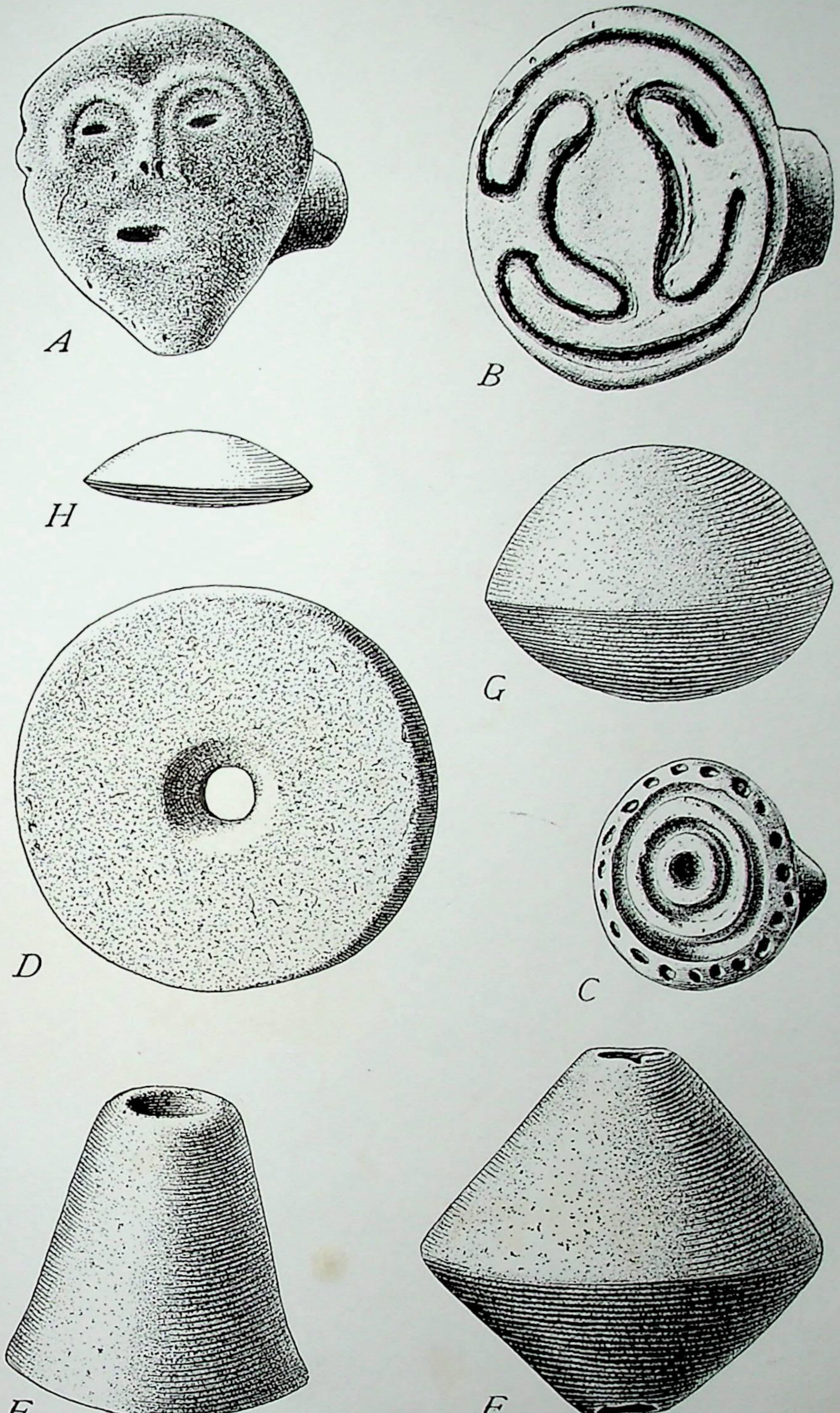
POTTERY OBJECTS, CARRIACOU

A, 7 inches; *C*, 5.31 inches.



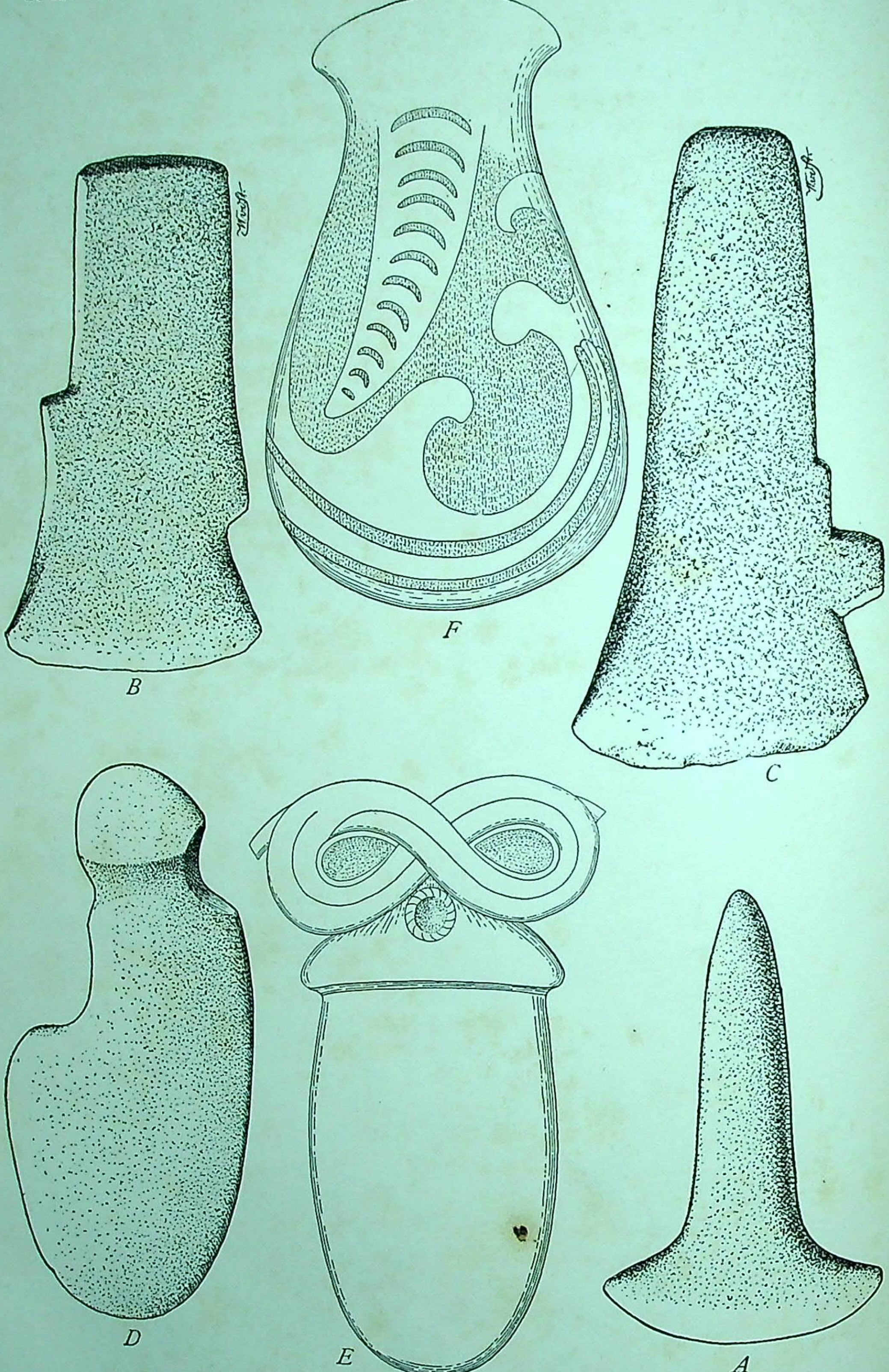
PENDANTS OF STONE AND SHELL, ST. VINCENT

G, 6 inches; *I*, 8 inches; *J*, 0.91 inch; *K*, 1 inch.



OBJECTS OF CLAY AND STONE

A, 1.31 inches; *C*, 1 inch; *D*, 2.25 inches; *E*, 1.5 inches; *F*, 2.19 inches; *G*, 1.88 inches.



STONE IMPLEMENTS, ST. VINCENT, GUADELOUPE

A, 4.75 inches; *B*, 5.5 inches: *C*. 6.88 inches; *D*, 6 inches; *E*, 6.25 inches; *F*, 6.5 inches.

ing snout and prominent eye. The head, plate 66, *D*, resembles that of a turtle and is more angular than the head of a bird. The upper jaw, which resembles a beak, extends beyond the lower and terminates in nostrils. The exceptional feature of this head is a row of holes at its attachment to the body, representing the flat dish of which it was one of the handles.

Plate 67, *A*, is likewise identified as the head of a turtle. It has an enlargement back of the head near its attachment, in which are pits corresponding to the row of holes described in plate 66, *D*.

Plate 67, *B*, represents a head with a pointed snout, resembling the wild hog, or peccary. The nostrils have the form of simple projections and the ears are indicated by raised ridges near the perforated eyes. In the middle of the forehead there is a rounded elevation with a central pit—a feature recalling that found in three-pointed stones representing reptiles.

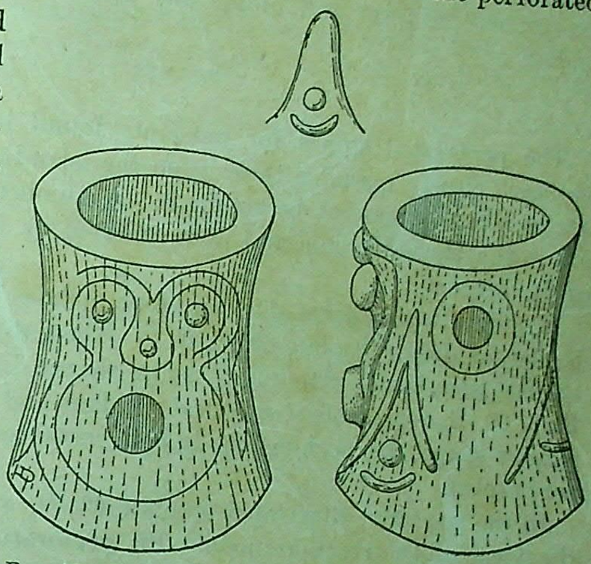


FIG. 11.—Hollow clay cylinder with face in relief. (6.13 inches.)

The head, plate 67, *C*, is more or less simian, and its form recalls those from Grenada figured by the author in his "Aborigines of Porto Rico."[70] A remarkable feature of this head is the pair of disk-shaped appendages just above the level of the eyes. The same or similar organ is shown also in plate 67, *E*, where the monkey face is even more striking than in *C*. Plate 67, *D*, has the appendage between the eyes in the form of a low cone or horn, while the highly conventionalized form, plate 67, *F*, defies interpretation.

One of the largest and best-preserved fragments of Grenada pottery, much reduced in size, is shown in plate 68, *A*. The patches of pigment with which this object was painted can still be seen adhering to its surface. This illustration represents the top of a jar the sides of which are missing, but the flat, heart-shaped base from which the head rises is a cover to the neck of a flask or vase with

[70] Twenty-fifth Ann. Rept. Bur. Amer. Ethn.

narrow orifice. The details of the head are evident from the illustration, but an unusual feature is the connecting band whose outlines inclose the pit representing the eye and the opening of the nostrils. The use of a vessel of the form indicated by this fragment is not apparent, and the animalistic head is unlike that of any other known to the author.

The fragment, plate 68, *B*, shows a handle and part of a spoon collected in the Grenadines. Many fragmentary specimens of like objects occur in the collection. It would appear that the fragment, plate 68, *C*, is part of a cylindrical vessel pointed at one end and probably modified into a head at the opposite end; but whether this vase was an effigy vessel or not is not clear. The part figured is exceptional in form and unlike any known bowl from the West Indies.

PENDANTS

The perforated stones for pendants found in St. Vincent and Grenada closely resemble those from the island of Guadeloupe, but are as a rule somewhat better made. A number of these pendants are in the Heye Museum and were collected by Rev. Mr. Huckerby, of St. Vincent.

In their simplest form they are stone nodules perforated near the border, as shown in plate 69, *A*, *B*, *C*. These differ mainly in form, the last mentioned, plate 69, *C*, being shaped like a human kidney. Plate 69, *B*, represents a spherical pendant and *A* a pendant of irregular shape, the perforations in both instances being angular and not beveled.

In the specimen illustrated in plate 69, *D*, we find a pendant in the form of an irregular nodule, the perforation being beveled on each end. There is no question that the hole was for suspension by a cord. This nodule is well polished, except at one point where its surface shows marks of pecking. The surface of the heart-shaped pendant, plate 69, *E*, is crossed by grooves spirally wound about it, the perforation having beveling on each end. Plate 69, *F*, represents a pendant, rectangular in form, made of greenstone, its outlines recalling those of an ungrooved ax. The perforation is minute, not beveled. The stone figures, plate 69, *G*, *H*, *I*, are made of slate, pointed at each end, rounded on one surface, and flattened on opposite margins. The perforations, when present (*G*, *I*), are situated near the edge about midway in its length. In plate 69, *H*, we have representations of crescentic stones, so allied to the former that they appear to connect them with more aberrant types.

One pendant, plate 69, *J*, in the St. Vincent collection was attached to a necklace or other foreign body by a groove at one pole, which is pointed.

A somewhat larger stone pendant is perforated at a point about one-third its length. This object, shown in plate 69, *L*, is flat on the surfaces and is rounded at one end, which recalls the cutting edge of an ax. The other extremity tapers, narrowing gradually to a blunt point.

SHELL OBJECTS

The three shell objects, plate 69, *M*, *N*, *O*, collected in St. Vincent, are made from the tip of the giant conch shell, and were probably implements, possibly used by the aboriginal potters. Each is prolonged into a handle at one end, while the opposite end is flattened, imparting to it the form of a spatula. Similar specimens have been collected by the author in Porto Rico, and others have been seen by him in collections from Barbados, where, from necessity, implements of shell replace those made of stone of an almost identical form.

TERRA-COTTA STAMPS

The common St. Vincent form of stamps for printing are disks with short handles, or a cylinder with superficial incised figures. Three of the four with designs upon them are here figured (pl. 70, *A*, *B*, *C*). A unique figure representing the human face is shown in *A*; the geometric designs, *B* and *C*, are more common. This type of pottery stamp is rare in the Porto Rico area, where it is replaced by a cylinder, several specimens of which have been described by archeologists.

PERFORATED DISKS

There are several small perforated stones and terra-cotta disks of the same form, collected at Grenada and St. Vincent, in the Heye collection. One of these, plate 70, *D*, is made of stone and undecorated. The two opposite surfaces of this specimen are flat and its margins square. The specimen, plate 70, *E*, is conical in shape, its base being flat and the sides sloping gradually to the frustum, which is almost wholly occupied by the perforation.

The perforated stone shown in plate 70, *F*, is double, the conical sides imparting to it a resemblance to spindle whorls from prehistoric Mexico. A similar shape appears in an unperforated stone, plate 70, *G*, which also has the lenticular form reproduced in plate 70, *H*.

These perforated disks with convex or conical sides are identified as spindle whorls, but the use of the lenticular stones is not certainly known.

DOMINICA

The author remained a few hours in Dominica and saw one or two collections from the islands, but is unable to add any information

to what is known of shell mounds or middens on this island. There are opportunities to study the ethnology of the Carib who still survive in Dominica and still speak their aboriginal language. As historical accounts of the ancestors of the Carib in Dominica are not voluminous, archeological field work among them would be amply repaid.

The archeology of Dominica is illustrated by the numerous characteristic objects purchased from Mr. Huckerby, and there are several collections on the island, the objects in which resemble those from the neighboring island of St. Vincent.

The museum in the library at Roseau, Dominica, has a collection loaned by Dr. Nichols, which is one of the most complete examined, and contains typical prehistoric specimens from the island. These objects are mainly stone implements, which as a rule resemble those from neighboring islands, although there are two or three specimens which are quite different in form from any others from the St. Vincent-Grenada area. Several petaloid celts were seen, but the majority of the axes are similar to those so widely distributed throughout the West Indies. The majority are peculiar to the chain of volcanic islands to which Dominica is geologically related.[71] The most characteristic implements are the rubbing and grinding stones.

Dominica is one of the few islands still inhabited by a considerable number of the natives who speak Carib and preserve some of the old Indian legends and many place names taken from their aboriginal tongue. Many stories connected with a lake in the middle of the island are survivals of Indian myths, and a large body of folklore of like character is current.

The sacred lake of Dominica is regarded with superstitious dread by the natives and has much folklore connected with it, which are evidently survivals of old Indian legends.

Notwithstanding all efforts to crush it out, there still survive in some of the Antilles remnants of the old negro culture called the voodoo, brought by slaves from Africa. The so-called priests of this superstition make use of all prehistoric objects in their rites and are said to sprinkle Carib celts and axes with blood in their orgies. It is not as complicated as in Haiti, and is generally used by the Obia men in laying spells or in medical practices, which the common people cling to with great obstinacy. The power of these Obia men on the poor blacks is a very serious obstruction to the uplifting of economic conditions in all the West Indies.

[71] A collection of prehistoric objects at Fort de France, Martinique, is represented to contain several exceptional forms, but the author did not have the opportunity to examine them.

Stone Implements

The axes from Dominica are mainly without grooves for hafting, but one of those in the museum at Roseau is girt by a deep furrow, and another has deep notches in the margin like those from South America. A unique specimen is flat or slightly curved on each face, which is smoothly polished, recalling the hatchet found in the Erin shell heap at Trinidad, in the mounds at St. Kitts, and common in British Guiana (fig. 12).

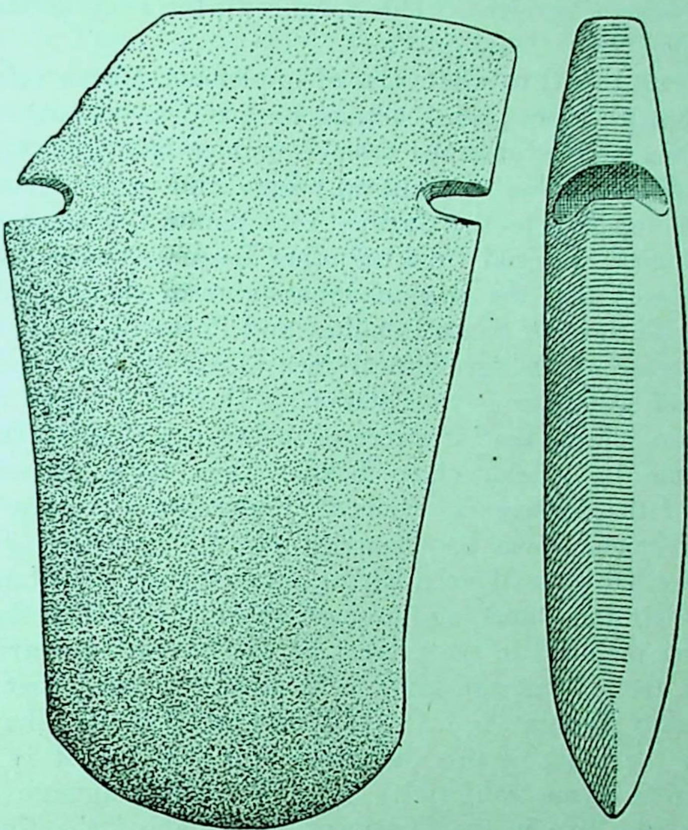


Fig. 12.—Ax with marginal notches.

Another exceptional stone implement from Dominica, likewise in the museum, is rectangular, with the four angles continued into fish-tail extensions, one of which is broken. In the middle of one face of this specimen there is a pit, apparently the beginning of a perforation. There is another unique specimen in the Dominica Museum in the form of a flat stone about 9 inches long. The collection in Dominica contains also one stone grinder resembling those from St. Kitts, another from Tobago, and a perforated stone from Nevis.

In the Nichols collection in the public library of Dominica there were two flat stone implements, the remarkable feature of one of

which was the double crescentic form, united midway in the two convex surfaces, the point of union being perforated.

In a form (pl. 71, *A*) resembling celts of the northern Antilles, except that the body is less tapering, the blade when seen in profile is lenticular. This is supposed to be the same as that figured by Prof. Mason, whose description applies to this object. He says: "A bell-shaped blade of brown patina and elongated body. It is difficult to conjecture how such a blade could be fastened in a haft. There are found in the Antilles frequently implements for smoothing, shaped like this specimen inverted. This form with the edge at the small end is unique."[72]

It is difficult to tell to what class of implement Mason refers this specimen, but it is here placed, not among grinders but among celts.

The various objects obtained from Dominica belong to the same type as those used by an agricultural people, and probably belonged to a race antecedent to the Carib. This points the same way as the archeological material from the other Lesser Antilles, and supports the theory that the original inhabitants of these islands had a kinship with those of Santo Domingo and Porto Rico.

The existence of an agricultural race allied to the "Carib" in the island of Dominica is thus stated by Davies:[73] "The Savages of Dominico affirm, that it proceeds hence, that when the Carribians came to inhabit these Islands they were possess'd by a Nation of the Arouagues, whom they absolutely destroy'd, save only the Women, whom they married for the re-peopling of the Country; so that those Women having retain'd their own Language, taught it their Daughters, and brought them to speak as they did; which being practis'd to the present by the Mothers towards their Daughters, their Language came to be different from that of the Men in many things. . . . To confirm what we have said concerning the cause of this difference of Language, it is alleg'd, That there is some conformity between the Language of the Arouagues who live in the Continent, and that of the Caribbian Women: But it is to be observ'd, that the Caribbians of the Continent, as well Men as Women, speak the same Language, as having not corrupted it by inter-marriages with strange Women."

In the following quotations[74] from the same author we have the legend of the introduction of cassava as the food plant.

"They say then, That their Ancestors were poor Savages, living like Beasts in the midst of the Woods, without Houses or places where they might retreat, living on the Herbs and Fruits which the Earth produc'd of itself without manuring; whilst they were in this

[72] Mason, op. cit., p. 753, fig. 24.
[73] The History of the Caribby Islands, p. 261.
[74] Ibid., p. 287.

miserable condition, an old man among them, extremely weary of that brutish kind of life, wept most bitterly, and, orewhelm'd with despair, deplor'd his wretched condition; whereupon a Man all in white appear'd to him descending from Heaven, and coming neer, he comforted the disconsolate old man, telling him, That he was come to assist him and his Countrymen, and to shew them the way to lead a more pleasant life for the future; That if any of them had sooner made his complaints to Heaven they had been sooner relieved; That on the Seashore there was abundance of sharp Stones, wherewith they might fell down Trees to make Houses for themselves; And, That the Palm and Plantine Trees bore Leaves fit to cover the Roofs of them, and to secure them against the injuries of the Weather; That to assure them of the particular care he had of them, and the great affection he bore their species, beyond those of other Creatures, he had brought them an excellent Root, wherewith they might make Bread, and that no Beast should dare to touch it when it was once planted; and that he would have them thenceforward make that their ordinary sustenance: The Caribbians add further, That thereupon the charitable unknown person broke a stick he had in his hand into three or four pieces, and that giving to the old man, he commanded him to put them into the ground, assuring him that when he should come a while after to dig there, he should find a great Root; and that any part of what grew above-ground should have the virtue of producing the same Plant; he afterwards taught him how it was to be used, telling him the Root was to be scraped with a rough and spotted Stone, which was to be had at the Seaside; That the juice issuing by means of that scraping was to be laid aside as a most dangerous poison; and then with the help of fire a kind of savory Bread might be made of it, on which they might live pleasantly enough. The old man did what had been enjoin'd him, and at the end of nine Moons (as they say) being extreamly desirous to know the success of the Revelation, he went to see the pieces he had planted in the ground, and he found that each of them had produced many fair and great roots, which he disposed of as he had been commanded: Those of Diminico, who tell this story, say further, . . . But in regard he went not to look what became of them, till after the expiration of so long a time, the Manioc continues to this present all that time in the ground, before it be fit to make Cassava of."

The following quotation is likewise from Davies:[75]

"This Island [Dominica] is inhabited by the Caribbians, who are very numerous in it. They have a long time entertain'd those who came to visit them with a story of a vast and monstrous Serpent, which had its aboad in that bottom. [Borlin's Lake?] They af-

[75] Ibid., p. 15.

firmed that there was on the head of it a very sparkling stone, like a Carbuncle, of inestimable price; That it commonly veil'd that rich jewel with a thin moving skin, like that of a mans eye-lid; but that when it went to drink, or sported himself in the midst of that deep bottom, he fully discover'd it, and that the rocks and all about receiv'd a wonderful lustre from the fire issuing out of that precious Crown."

The story of the Man in White from heaven or the sky who brought the blessings of a higher culture has a familiar sound in American aboriginal mythology, and naturally reminds one of the Quetzalcoatl myth of the neighboring Central America. He brought them the gift of the national food plant, the yuca, and was no doubt worshipped on that account.

Not less aboriginal is the story of the Great Serpent who lived in the bottom of the lake and wore the sparkling stone in his head which lighted up the cliffs. This might well be a myth of the Sky God, who was worshipped in the form of a snake.

MARTINIQUE

Less is known of the archeology of Martinique than of any other West Indian island. The specimens from that island in different collections differ so little from those of Santa Lucia and Dominica that the island is put in the same culture area, although its relationship to Dominica and Guadeloupe is closer than to St. Vincent and the Grenadines.

There is a small public collection at Fort de France which was not visited by the author. The great volcanic activity of Mont Pelee shortly before the author's visit had about depopulated all the northern region of the island.

GUADELOUPE

The most aberrant island, archeologically speaking, of the St. Vincent culture area, is Guadeloupe, from which there are few, if any, specimens in the Heye collection. In order, however, to give an adequate idea of the objects from this area the author made new studies of the famous Guesde collection now in the Berlin Museum für Völkerkunde and has embodied the results of his work in the following pages. It was found necessary to prepare new illustrations[76] of the Guesde objects, which are also introduced into this report.

[76] These illustrations were prepared by Mr. von den Steinen with permission of the director of the museum.

Guesde Collection

The most important collection from the Lesser Antilles, next in size to that owned by Mr. Heye, is the celebrated Guesde collection made many years ago in Guadeloupe and now in the Berlin Museum für Völkerkunde. This collection was brought to the attention of the scientific world by the late Prof. Otis T. Mason, whose account of it will remain an important pioneer work on the antiquity of the Lesser Antilles, as that on the Latimer collection is the first of importance on the antiquities of Porto Rico. There are about 600 specimens of the Guesde collection in Berlin, of which about a third were described by Prof. Mason.

Mason thus refers to the nature of the material used in the preparation of his monograph on the Guesde collection: "The editor of this monograph sincerely regrets that he has not the specimens before him; but it was impossible to transport with safety so many valuable objects to Washington, and equally impossible for the editor to make the journey to Guadeloupe. Fortunately M. Guesde has painted in water colors, with scrupulous care, all of the examples figured, preserving both the color and the size. The omission of the thickness would somewhat mar the description in many cases were we not familiar with the two typical forms of blades so frequently figured here."[77] Many of these specimens are described in the following pages with objects in the Heye Museum; the general type of antiquities from this island are so closely related to those of St. Vincent that they are included in the same area.

The following quotation from M. Guesde, who made the Guesde collection, is copied from Mason[77a] and gives a good idea of the nature and variety of objects found at Guadeloupe.

"From my youth I have always been deeply impressed with what I have read about the Caribs. The sight of the stone objects which once belonged to these primitive inhabitants of the Antilles produced an indescribable impression on me.

"As years went by the stronger became my desire to collect together all that the soil of Guadeloupe might contain relating to the Caribs.

"I accordingly went to work in the year 1866, and after 18 years of constant research, never allowing myself to be discouraged by any difficulty, I have the satisfaction of being able to exhibit to ethnologists this collection, which I believe to be more complete than all others now existing, in Paris as well as in America.

"My collection includes roughly worked stones indicating an industry in its infancy; and others, on the contrary, which are brought

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[77] Mason, op. cit., p. 732. The closing lines account for the fact that several rubbing stones were identified as blades.

[77a] Op. cit., pp. 733–740.

to such a degree of perfection that it would be difficult to improve on them, either in design or workmanship.

"It is necessary to state the fact which permitted John Lubbock to class the aboriginal inhabitants of the American islands among the neolithic peoples; it is because the stone is always polished. There is not a single relic formed solely by being chipped, for those rare pieces (axes or chisels) which present such an appearance also have the surface very well polished. Besides, these volcanic stones can not be worked by chipping, like flint, quartz, or obsidian.

"We come across axes so small that we ask ourselves if they were not used by pygmies, and these alongside of others so large and heavy that we dream of Titans, and no longer of men like ourselves.

"In addition to all these relics, which I have gathered from the ground in all parts of the colony, both on the seashore and in the interior, and at altitudes of from 200 to 900 meters, enormous stones covered with strange designs are found, especially in a single quarter of Guadeloupe proper. The dimensions of these stones vary considerably. In some the drawings are so high up that it is difficult to reach them; in others they are near the ground or buried under the surface. They are scattered without order about the country and in the beds of the rivers. At St. Vincent also, the last refuge of the Caribs, stones with inscriptions on them are found in the beds of rivers.

"It is now very difficult to find wrought stones in the ground. Here and there the plow or the hoe turns up some occasional fragments. These stones lie in fact in the arable layer or stratum, and this has been so well worked that everything it contained has been brought to light. New clearings alone would favor the collector. In the deep strata would other things belonging to an earlier race be found? In the case of Grande Terre it would be impossible, for as soon as we have passed the vegetable mold we reach calcareous rocks, Madreporic formations containing numerous fossil shells and dogfish, which preclude all idea of the presence of man. It appears to me more probable in the case of Guadeloupe, which is of more ancient formation, and which must at all times have offered more resources to man.

"However large may be the number and variety of the types which I possess, I still consider my work incomplete. It constitutes only the prolegomena of what I would wish to accomplish.

"In the presence of this collection one is led to ask if these wrought stones are the work of the *Yguiris* or of the Caribs, or if they would not belong to these two races. We are in almost complete darkness on this point. It is necessary to throw some light on the subject. This could be done only by visiting all the Lesser Antilles, which were already occupied by the Caribs on the arrival of Columbus;

the Greater Antilles from Porto Rico to Cuba; and Trinidad, which is but a fragment recently detached from the continent; by gathering carefully in each island all the wrought stones which would certainly be found there; by studying with the utmost care the inscribed stones; by classifying separately the inscriptions and relics according to locality; and finally by comparing the whole together in order to determine the points of relationship.

"Having completed this first labor in the Greater and Lesser Antilles, it would be necessary to collect together the relics from the soil of Guiana and, taking them as types, to compare them with those of each Antille separately. Then only could we come to some conclusion. We would have laid open to us in fact the now silent history of these aboriginal inhabitants.

"I have been able to obtain some pieces from Porto Rico, as follows: 1st. Celts of all sizes, in general well polished, but some with a fine brilliant glazing. 2d. A mortar representing a bat—a very curious piece which must have required long months of labor. 3d. An idol representing a man lying on his belly and supporting a mountain on his back. A very remarkable peculiarity is that the legs are bent as if in the act of swimming. I think that this idol is the personification of some marine deity, protector of an island. 4th. An enormous necklace, covered with inscriptions on one of its lower surfaces. This necklace was evidently slung over the shoulder like a hunting horn. 5th. The lower part of another necklace, but without any inscription. 6th. A small netting needle. 7th. Some remains of pottery (heads of men and monkeys modeled with great boldness, evidently forming cup handles) and the upper rim of a cup which must have been of great diameter. Some of these fragments of pottery still bear traces of a fine red glazing.

"I must acknowledge that during two sojourns at Porto Rico—one of six and the other of two months—I never came across an ax. Moreover, there is not a single ax in the superb collection presented to the museum at Washington by Mr. G. Latimer, and which is entirely from Porto Rico. The abundance of axes in the Lesser Antilles and their complete absence in Porto Rico would seem to indicate a difference of race in the inhabitants of these different islands.

"I have been able to obtain five perfect celts and four fragments from Martinique; one single celt—but very remarkable for form and polish—from Dominica; two celts and three axes from St. Lucia; and one celt from Santo Domingo (the Hispaniola of Columbus).

"No typical difference can be established between the celts, whether they come from Porto Rico or from Martinique, Guadeloupe, Dominica, and St. Lucia.

"Now, since the strata of the Lesser Antilles do not contain the material used in some of these celts, it is certain that they were not made where they were found. Should we not, therefore, infer from this that they all have the same origin, that they all come from the continent or from the Greater Antilles?

"I have in my possession a club (*baton*) from the Galibis of Dutch Guiana. This club has a certain age. The wood, of a red color when freshly cut, has assumed a very deep black hue. The cotton thread around the handle is very dirty. The weapon has seen service. This club is exactly like those used by the Caribs of the islands, and which Father Dutertre has described; but the peculiar part of it, the thing that gives it an enormous interest, is the green celt fixed in its lower extremity. Now, this celt resembles all those which I have found in Guadeloupe and the other islands. Is it of modern manufacture? Is it not rather the work of the first inhabitants of the continent? Has it not been found in the soil and used by its discoverer? I would decide without hesitation in favor of the latter hypothesis, for it is covered with a patina, which only a long continuance in the soil could give it.

"Here is another fact which seems to prove that the Caribs of Columbus and of Father Dutertre are the same as those of Guiana.

"The exterior distinguishing color is not always that of the stone of which they are made. The color, which is black, red, yellow, brown, or bluish, partakes essentially of that of the soil from which they were taken. Those from Grande-Terre, whose calcareous soil is covered with a thin layer of black and compact vegetable earth, all have the colors more or less dark—brown, red, black—while those from Guadeloupe proper, whose soil is covered with a thick layer of more or less ferruginous red earth, have the tints lighter. Yellow specimens are numerous there. Many of them have preserved their normal tint. These are the ones found near rivers. Continually washed by their waters, they have not acquired the coating of rust with which those buried in the ground are covered.

"So true is the above that every fresh break shows the interior of the stone to be of a different color from the exterior.

"All these rocks are volcanic, and are naturally either black, blue, or green.

"This peculiarity does not generally exist in polished celts. The glazing has unalterably fixed the color of the stone. They have, in consequence, remained free from all oxidation, and appear as if just from the hands of the workman.

"*Axes.*—Axes are more numerous than all the other pieces. That may be readily understood, the ax being of prime utility to man. Some are long and narrow, others short and wide; some are very

flat, others very thick; some are very small, while others are of enormous size and weight. I have two weighing, respectively, 4 kilograms 750 grams and 4 kilograms 775 grams. Some are of very simple construction, merely the natural stone of appropriate form, which a little working transformed into an instrument; while others, on the contrary, are true masterpieces, which will bear comparison with those found in Denmark only. The latter are very rare. They were evidently used for purposes of parade, for it can not be allowed that the author of such a work would have exposed it to be broken at the first shock, thus losing the product of the labor of several months—I might even say of several years.

"The ax admits of four distinct parts—the head, the neck, the blade, the cutting edge.

"The head is sometimes round, sometimes flat, sometimes very small, sometimes as large as the blade. Some axes have one or several transverse grooves, some have none at all, others a single longitudinal groove. The last are very rare. Pierced axes are very rare. The holes served, if they offer any assistance, to fasten the stone to the handle; if not, to suspend ornaments. The head played an important part in attaching the ax to the handle, for there can be no doubt that all these axes had handles. The small as well as the large ones were fixed on a wooden handle by means of cords made of cotton or mohot.

"The neck is more or less lengthened. Sometimes it is formed by lateral notches only, but generally by a circular depression.

"The blade varies considerably in form, length, and thickness. There is no proportion between it and the other two parts.

"The edge is more or less distinct. In some axes it is so perfect that one would think they had been sharpened the day before.

"I have three double-edged axes—two of moderate size, the other very small. I have four axes of which the head is prolonged into a long tail, and which resemble, one of them especially, that which has been termed Montezuma's ax. I have also a certain number, both small and very large, with a slight but decided protuberance on the lower part of one side of the cutting edge, which suggests the idea of a tool appropriated to some special purpose. Finally, I have some axes with the blade curved like that of a cimeter. These are rare.

"*Celts.*—Celts vary much in form, size, and color. Some are slender with a sharp point, others are massive with a blunt point; some are broad and flat, others narrow and deep; some reach enormous proportions, while others are very much reduced in size.

"Celts are scarcer than axes in Guadeloupe. Most of them are made of a handsomer, harder material than that used for axes, such as serpentine, jade, or jadeite. The fine glazing of the stone,

also, is found only in celts. I have some, large and small, made of the volcanic stone used ordinarily for axes. These are very well polished, but not glazed. This handsome glazing gives an exalted idea of the industry of these savages, for it could not be done better in our days.

"The Caribs made use of the living forces of nature to fix the celts on the wood. But to introduce a celt into a young tree and let the tree grow till the resistance was sufficient, required many years. I believe, therefore, that they rarely had recourse to this process. They evidently followed the same method employed by the Canaques and other savages of the present century ignorant of the use of metals, whose celts do not differ from those found in our islands. This method consisted in fixing the stone by the aid of very fine cords in a socket prepared in the wooden handle.

"I must not forget to mention the shell celts. These are not made of living shell, which would not have been hard enough for the purpose, but of fossil shell. They are very rare. They were extracted from the outer edge of the *Strombus gigas*, very common in the Caribbean Sea.

"It is to be supposed that the glazed celts were rather warlike weapons than instruments of labor, for they offer more resistance in proportion to their size; and we know besides that the savages used in war whatever had most value in their eyes. The very large-sized celts must have served as wedges in splitting trunks of trees.

"*Casse-têtes.*—The casse-tête type is furnished by a stone, either round or with bilateral facets, in the center of which is a more or less deep groove for the wooden handle. One can easily conceive the power of such a weapon wielded by a muscular arm in hand-to-hand combat.

"Some are more perfect in form than others. Everyone was free to fashion so important a weapon as best suited him.

"But what astonishes the observer is the small size of one of these relics. Evidently it could have been only an amulet, worn with the idea of preserving its owner from the blows of the weapon it represented.

"Other casse-têtes were used without handles. Only two types figure in my collection. This weapon had not the value of the preceding.

"*Pestles, grinders.*—Pestles and grinders are of various forms and sizes. My collection includes a certain number of them. I possess a single specimen, which was used with both hands.

"*Mortars.*—Mortars are not very numerous. This is explained by the fact that any hard stone which was flat and smooth would take their place. The complete mortar could have been only an article of luxury belonging to a cacique.

"Shall I designate as mortar that rounded concave stone with regular grooves descending from the central point to the rim? Although quite hollow on its lower surface, I do not think it could have been anything but the lid of a large vase, grooved or fluted in like manner. In fact, this mortar would have had no fixed position. It could not remain stationary in the position necessary to make use of it. Or should we not rather think that the maker of this piece wished to represent a miliform cactus so common in the Antilles? And in this case should we not rather class it among the idols?

"*Dishes.*—There are but two dishes in my collection: 1st. A large one of rude workmanship. The concavity only is polished; the exterior rough and very irregular. 2d. A small one of very remarkable finish. It is in fact very well polished on all its inner and outer surfaces.

"*Harpoon.*—One single harpoon, slightly broken at the three extremities. The absent parts can, however, easily be restored in following the lines traced on the body of the piece. This instrument is very remarkable.

"*Hooks.*—I have two hooks very different in form. Both are a little broken, but easy to reconstruct by following the method indicated above.

"*Awls.*—Awls are rare. My collection includes only two of them, but I must state that the material employed is harder than that of the ordinary tools and instruments.

"*Chisels.*—Chisels are numerous and of various forms and sizes. The basil of the cutting edge is perfect. Some of them are made of the same material used in the fine celts, and, like the latter, have the handsome glazing mentioned above.

"*Vases.*—I have only two vases. One is of guaiacum. The handle is perfectly isolated from the body of the vase. This piece is of very great interest. As the guaiacum is incorruptible, we need not be surprised that it has come down to us. It was found at Bertram Creek, the last quarter of Guadeloupe inhabited by the Caribs. Its edges are worn and hacked, and bear evidence of having been a long time in the earth. I have seen a small tortoise of the same wood found in a cave at St. Vincent.

"The other in my possession is of stone. It is an astonishing piece from its general regularity and its contour.

"Shall I class among the vases that small cup with a rather long spout? It rather resembles a spoon, and I think that it might be designated as such, taking into consideration the break, which leads us to suppose that a prolongation forming a handle formerly existed.

"*Netting needles.*—There is one small netting needle, very well made and very regular, which evidently served to net cotton, and two other larger, more massive ones, which served to prepare cords.

"*Idols.*—The idols are six in number:

"1st. One representing a man extended on his back, the legs bent under him, the arms applied to the chest, the head covered with a cap, the sexual organs very conspicuous. It is well finished and must have cost years of diligent labor.

"2d. One representing a man on one face and a monkey on the other, is very interesting. It was found at Matouba. The work on this statuette is rude. The hand that made it was wanting in skill. But what shall we say of the genius which inspired this combination of man and monkey? Should we not consider Darwin only a plagiarist?

"3d. Another found in Guadeloupe, of the same type as that from Porto Rico, but much larger and so rough that it can not be determined what it represents. The undersurface is slightly concave.

"4th. A small granite pyramid, with three grooves or furrows on its lower part. It was found on the island of Désirade.

"5th. A head with two faces surmounted by a Phrygian cap. This head was to be fixed on another stone or a piece of wood forming the body of the idol, for it is much too heavy to admit of the supposition that it was carried in the hand. I have vainly searched for this complemental lower portion at the place where I found the head.

"With this last idol we must place an ax and one other piece, both having lines identical with those of the idol head. I think they represent faces.

"*Amulets.*—The principal amulet is of carbonate of lime in bladed crystallization. It represents a *maboya* (evil spirit), with bended arms and legs, and the virile organ in a state of action. The shoulders are pierced posteriorly to allow of the suspension of the amulet. The other amulets are medallions of different sizes, more or less round; all pierced with a small hole to admit of suspension. I have a single small crescent of stone, an evident representation of the caracoli of metal. This crescent must have been set in wood, unless it was provided with a cotton string terminating at each extremity in a small cord for suspension.

"*Disks or quoits.*—I have six disks, large and small. One especially is a very remarkable piece of work. There is no doubt about the determination of these relics. The Caribs played quoits.

"*Edicule.*—A small monument having handles on each side; on top of the handles a platform disappearing under a vault. There is a hole in the middle, presumably the place for an idol. This relic is very curious, and reminds one of the Mexican teocalli.

"*Chisels of shell.*—Besides the various stone tools my collection includes a series of very fine chisels extracted from the outer edge of the *Strombus gigas*. This part of the shell is very thick and harder than stone. It is certain that the Caribs did not use the living *Strombus*, but were careful to take the fossil *Strombi*, which had in time acquired the hardness of ivory.

"*Stone for making axes.*—I have in my possession a very interesting stone, which has inscribed on it the use for which it was intended. It has concavities on three of its surfaces. It is evidently a kind of grindstone, on which stones were rubbed in order to shape them.

" Since writing the above I have had the good fortune to discover in Grande-Terre, in a piece of ground which had not been plowed for 60 or 80 years, two tools of flaked flint—a knife and hacking knife. This discovery somewhat modifies the theory held to this day by writers on America that flaked flint does not exist in the Antilles.

" It is very evident, however, that these two flints were not dug from the soil of the island and then flaked by their possessor, for this stone does not exist in Grande-Terre or Guadeloupe in a state of nature.

" These two flaked flints establish, in an irrefutable manner, the fact of a migration of men from the valleys of the Orinoco toward the islands."

The account given by Prof. Mason of the Guesde collection was based on the excellent figures in an album and not from direct observation of the specimens themselves. Since this report was published the Guesde collection has passed into the possession of the Berlin Museum für Völkerkunde, and in order to familiarize himself with the typical features, the author visited Berlin in 1913 and prepared new drawings,[78] some of which may be of assistance to future students.

There are many more specimens in the Guesde collection than those thus far described. The collection numbers not far from 600 specimens, 190 of which are figured by Mason in his monograph. M. Guesde apparently did not prepare drawings of some of the most typical forms, and some of those which Mason figures were not in the collection studied by the author. The majority of the specimens, however, were examined and their special features noted, and the more typical forms, several of which do not occur in any other collection, are here illustrated. It is hardly necessary for me to state that the Guesde collection is by far the best, as it is the only one of size from the island of Guadeloupe.

[78] These drawings were made from the objects themselves by Herr von den Steinen, of Berlin.

Mason divides objects in the Guesde antiquities into the following groups: (1) Unpolished implements; (2) polished blades without haft-grooves; (3) faces continuous, sides incurved or notched; (4) butt distinct, faces not continuous; (5) blades with hooked edges; (6) blades with encircling grooves; (7) hammers, grinders, and polishers; (8) perforated stones; (9) ornamental forms.

The author has adopted one or two of these groups, but certain features unrecognized as of importance by others has led him to remodel the existing classification of these West Indian objects.

In the author's classification of Guadeloupe antiquities the first of Mason's groups is wholly eliminated and does not appear as a distinct type; his second group practically includes petaloid celts, while his third and fourth groups are broken up into minor divisions. His fifth group is regarded as composed of two distinct types, blades, and grinders, the appropriate place for the latter being his seventh or the author's sixth group.

The stone objects from Guadeloupe studied by the author are here considered under the following headings:

1. Axes with regular margins.
2. Axes with asymmetrical margins.
3. Eared axes.
4. Engraved axes.
5. Perforated axes.
6. Anchor axes.
7. Incised and perforated stones.
8. Problematical stones.
9. Mortars.
10. Pestles, grinders, and hammers.

1. AXES WITH REGULAR MARGINS

The greater number of axes from Guadeloupe belong to this type or those stone implements with regular margins. Their form approaches closely that of similar axes already described as found in great numbers in the islands of St. Vincent and Grenada, to which area Guadeloupe is allied in pottery and bone and shell objects. Only a very small percentage of petaloid implements occur in Guadeloupe, while in Porto Rico the majority belong to this group.

2. AXES WITH ASYMMETRICAL MARGINS

The three axes, plate 71, *A*, *B*, *C*, ascribed to the Guadeloupe area, seem more characteristic of the St. Vincent area.

Plate 71, *C*, has on one side a rectangular projection and a slightly incurved edge on the other. What appears to be a like object is represented by Mason in his figure 46 and described as follows: "A curiously formed blade of dark color and highly polished. It is

not altogether unlike figure 45, the chief peculiarity being the projection upon the upper side. This characteristic does not appear on any other specimen in the collection."[79]

Several specimens illustrating the asymmetrical type of stone axes have been figured by other authors, among whom may be mentioned Joyce and Mason, although no one has yet differentiated this type from those of more regular forms. The present specimen, plate 71, *D*, is one of the most striking and is thus described by Prof. Mason:

"A grooved blade of dark brown color and fine polish. The butt wedge-shaped and rounded. The hafting space is a complex affair, consisting of four parts, two narrow-faced grooves, a groove on the lower side a little wider, and a long, wide notch on the upper. The section of the groove is rectangular. The same idea of a shoulder on one side of the blade may be studied in a specimen from Mennithorpe, Yorkshire, England. This latter one, however, is very rude and far behind the Guesde's example. (Evans' 'Ancient Stone Implements,' fig. 82.) This blade lashed to a shouldered handle would be a very effective tool or weapon. From Marie-Golante. Length, 6 inches; width, $2\frac{8}{10}$ inches."[80]

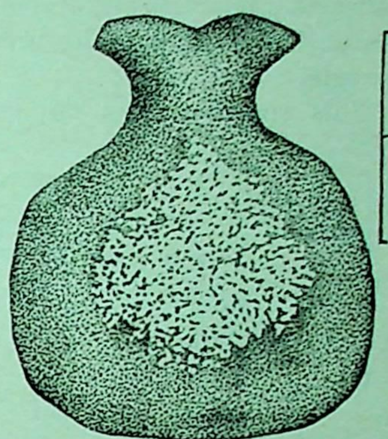


FIG. 13.—Ear-shaped blade. (3.6 inches.)

Plate 71, *E*, *F*, are remarkable objects. The former has the head ornamented with an 8-shaped design; the latter, from St. Vincent, has an incised design on the surface.

3. EARED AXES

The simplest form of eared axes from Guadeloupe are not unlike many from the St. Vincent area. One of these is shown in figure 13. The edges of these could hardly be called cutting edges, and the implement may be unfinished.

The following quotation[81] gives Prof. Mason's comments on this specimen:

" A hoe-shaped blade, of the double-beaked variety and light, marble color. The beaks are reduced to the simplest form and divided by an emarginate curve. The lateral notches are not separated from the other parts, their lines being continuous from beak to beak. The highly polished and finished condition of this specimen separate it from the agricultural class, although its shape is that of the plantation hoe. A similar but clumsier butt is seen in Im Thurn's volume

[79] Mason, op. cit., p. 762. [80] Mason, op. cit., p. 793. [81] Op. cit., p. 755, fig. 31.

(Timehri III, pl. VII, fig. 2). His blade, also, is nearly rectangular. Width, $3\frac{6}{10}$ inches; width of neck, $1\frac{3}{10}$ inches."

The large ax belonging to the Guesde collection, now in Berlin, is a fine implement, and, although unfortunately broken, might well be regarded the most perfect known eared ax. Two unique features distinguish this ax—viz., the decoration on one surface and the projections on the margins. One of these appendages has been broken, and its former shape is indicated by a dotted line (see fig. 22). The other, still intact, is perforated by a minute hole which we have every reason to believe was also present in the projection on the opposite margin.

This specimen was figured and described by Prof. Mason.[82] It appears that the elaborately engraved figure on the surface of the blade was overlooked by him, as in fact it was by others, and was only detected by the author after moistening with a damp rag, when the engraved design, which is more or less fragmentary, was brought to light. It is evident that the surface of the blade is much eroded to have so effectually obscured the engraving upon the surface.

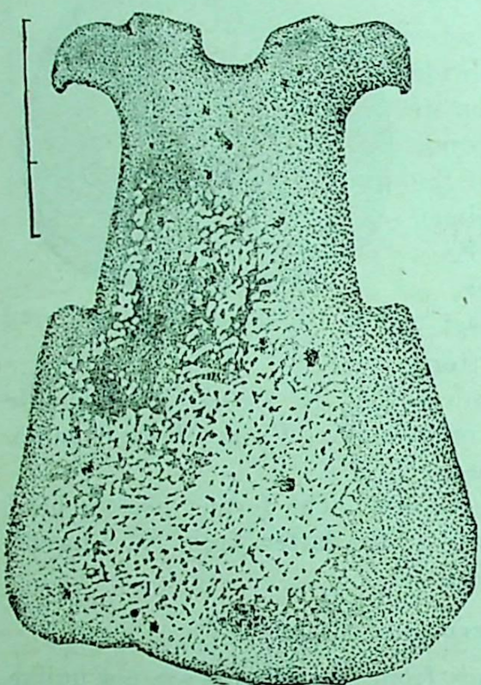


FIG. 14.—Eared stone implement. (9.4 inches.)

There are several specimens in different museums which resemble that here figured (fig. 14). The nearest approach to it, possibly the same specimen, is thus described[83] by Prof. Mason: "This beautiful blade, up to whose form the last few specimens have been leading us, is of a dark-green color, and presents some interesting characteristics. The butt resembles two eagle heads facing outward. The long haft-space or neck widens gracefully outward to where it is joined to the sides by abrupt shoulders. The faces are highly polished and continuous over the entire specimen. The lower side of the edge has been broken and reground. Length, $9\frac{4}{10}$ inches; greatest width of blade, $4\frac{7}{10}$ inches; greatest width of haft-space, $2\frac{7}{10}$ inches."

The ax next considered (fig. 15) is referred to by Prof. Mason[84] in the following quotation: "A two-beaked blade of blackish-drab

[82] Op. cit., p. 776, fig. 76. [83] Op. cit., p. 758, fig. 37. [84] Op. cit., p. 798, fig. 128.

color, and perfectly smooth. The lines of this specimen are everywhere bold and graceful. The slender beaks, high crests, and other characteristics are very tastefully combined. Length, $5\frac{8}{10}$ inches; width of edge, $2\frac{9}{10}$ inches."

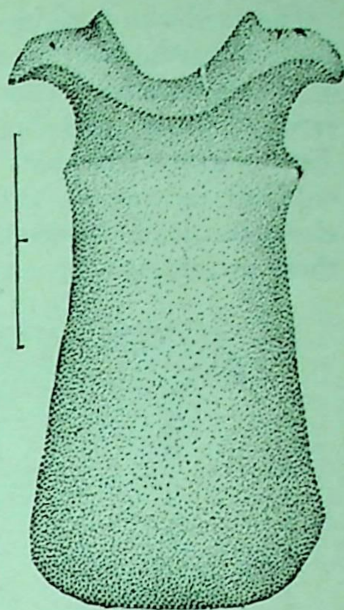


FIG. 15.—Stone implement with two beaks. (5.8 inches.)

A related specimen (fig. 16) is described by Prof. Mason[85] in the following account: "A massive two-beaked blade of mottled, marble-colored stone. The distinguishing feature is the ridged, seal-like depression between the beaks. Length, $11\frac{3}{10}$ inches; width, $6\frac{4}{10}$ inches."

The slight modifications in the course of the cutting edges that distinguish some of these specimens are not deemed important enough to illustrate by separate figures. The same holds also regarding the relative length and breadth. The general characters are brought out in Prof. Mason's description[86] of an ax (fig. 17) similar in all essentials to the typical eared variety: "A massive and graceful blade of dark sooty-brown patina. It is in perfect preservation, highly polished, and almost perfectly symmetrical. The butt has the double eagle head, the crests forming a gradined depression in the center. The haft-space or neck has nearly parallel sides, connected with the body by shoulders. The sides spread rapidly outward to meet the broad, finely curved edge. Length, $11\frac{2}{10}$ inches; width of edge, $7\frac{8}{10}$ inches; top of blade, 4 inches; width of shank, 3 inches; width of butt, $5\frac{2}{10}$ inches."

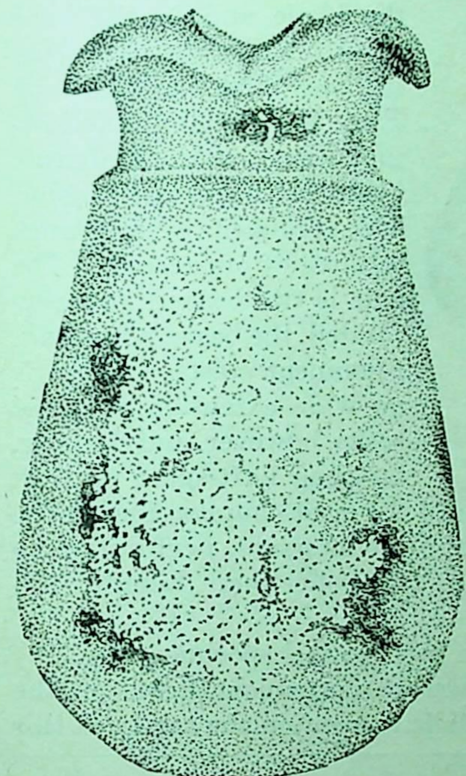


FIG. 16.—Eared stone implement. (11.3 inches.)

[85] Op. cit., p. 798, fig. 129.

[86] Op. cit., p. 759, fig. 38.

The ax shown in figure 17, from the Guesde collection, now in the Berlin Museum, may be considered one of the most highly developed of the eared axes. This blade has all the essential features of an eared ax, but its form is regularly spatulate and its edges crescentic. The margins of the shaft are parallel, the head projections extending outward, recurving slightly at their extremities. Small rectangular elevations are to be noted on the upper edge of the projections, and these are separated by a median notch, the walls of which are straight and more or less angular. This fine symmetrical specimen was probably used ceremonially, for it presents no evidence of having been attached to a handle, and the blunt edge shows no sign of use.[88]

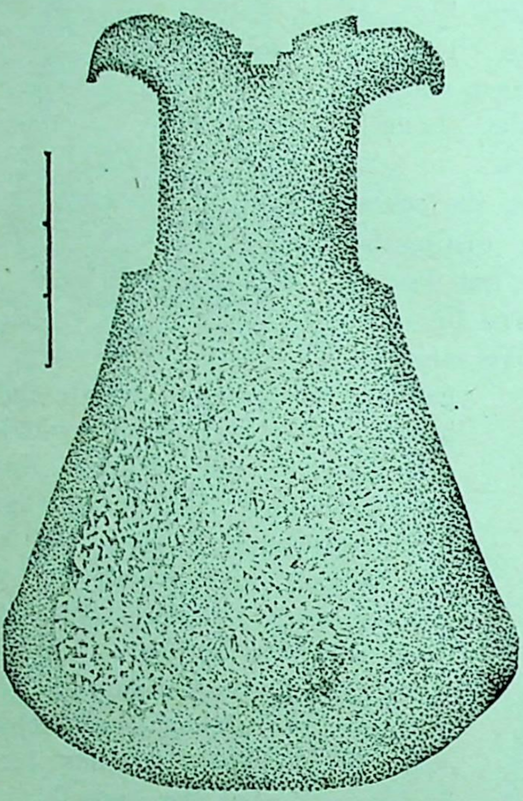


FIG. 17.—Massive stone eared implement. (11.2 inches.)

Only one known eared ax, that is here described, has a perforation on one edge of the blade and in the head as well. This specimen (fig. 18) was first described by Prof. Mason [87] in the following lines: "An elaborate blade of deep brown color. This specimen really belongs to three of our classes. The butt is two-beaked and perforated, the beaks with long, prominent crests. There is no wide extension of these beaks, however, and the long, tapering haft-space or neck is abruptly shouldered. The body is of the meat-chopper form to be seen further on. Its upper side has the countersunk perforation to be observed on several specimens in this collection. Length, $6\frac{2}{10}$ inches; width, $4\frac{1}{2}$ inches."

The peculiar serrated edges of the head in this specimen (fig. 19) are rightly interpreted by Prof. Mason as ornamental, but in the following reference to the object he fails to mention the rarity of this

[87] Op. cit., p. 759, fig. 39.

[88] Attention may be called to the fact that multitudes of similar implements have been found in caches, as if hidden in this way intentionally, either for concealment for subsequent use, or for some other purpose. It has been suggested that they are partially finished implements, which seems improbable, as most of them are perfectly made and symmetrical in all their parts.

form of decoration, which, so far as known, is confined to two or three specimens. In his account[89] of this specimen Prof. Mason writes: "A beautifully polished blade of light brown color. It is mērĭ-shaped. The butt is gently rounded, bounded by a ridge, curved transversely in a 'line of beauty,' and ornamented with nine mammiform protuberances. The other elements form one continuous and graceful outline, save a slight fracture on the right extremity of the edge. Length, $6\frac{2}{10}$ inches; width, $4\frac{4}{10}$ inches; width of neck, $2\frac{1}{10}$ inches."

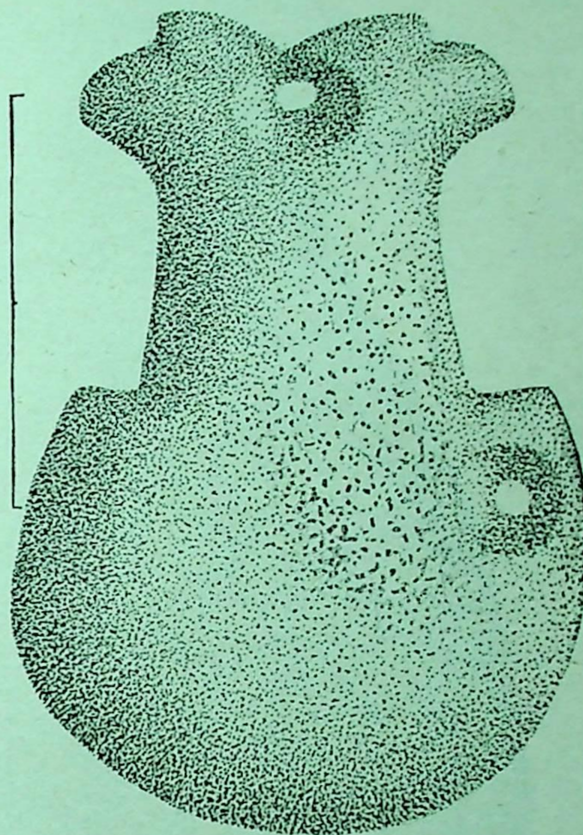


FIG. 18.—Perforated eared implement. (6.2 inches.)

A careful examination of the specimen (fig. 20) supports the conclusion of Prof. Mason as to its beauty and polish. His comparison of the head to an opera hat is particularly appropriate, as in this feature it stands alone among all the axes examined by the author. Prof. Mason's description of this object is as follows:[90] "A finely polished blade of brown color. This is one of the most beautiful specimens in the collection. The butt has a bounding ridge very prominent, the curved surfaces above and below nearly alike. Two gradines above this are carved in the shape of an opera hat or the sheath of the lace palm doubled in and dented on the top. The unlike sides are very well seen here. Length, $5\frac{1}{10}$ inches; greatest width. $4\frac{1}{10}$ inches."

[89] Op. cit., p. 767, fig. 58.

[90] Op. cit., p. 772, fig. 65.

4. ENGRAVED AXES

The term ax is here limited to the implement with poll, shaft, or blade, all combined, or with one or the other part absent. The poll or head is present in some form or another, sometimes simply blunt

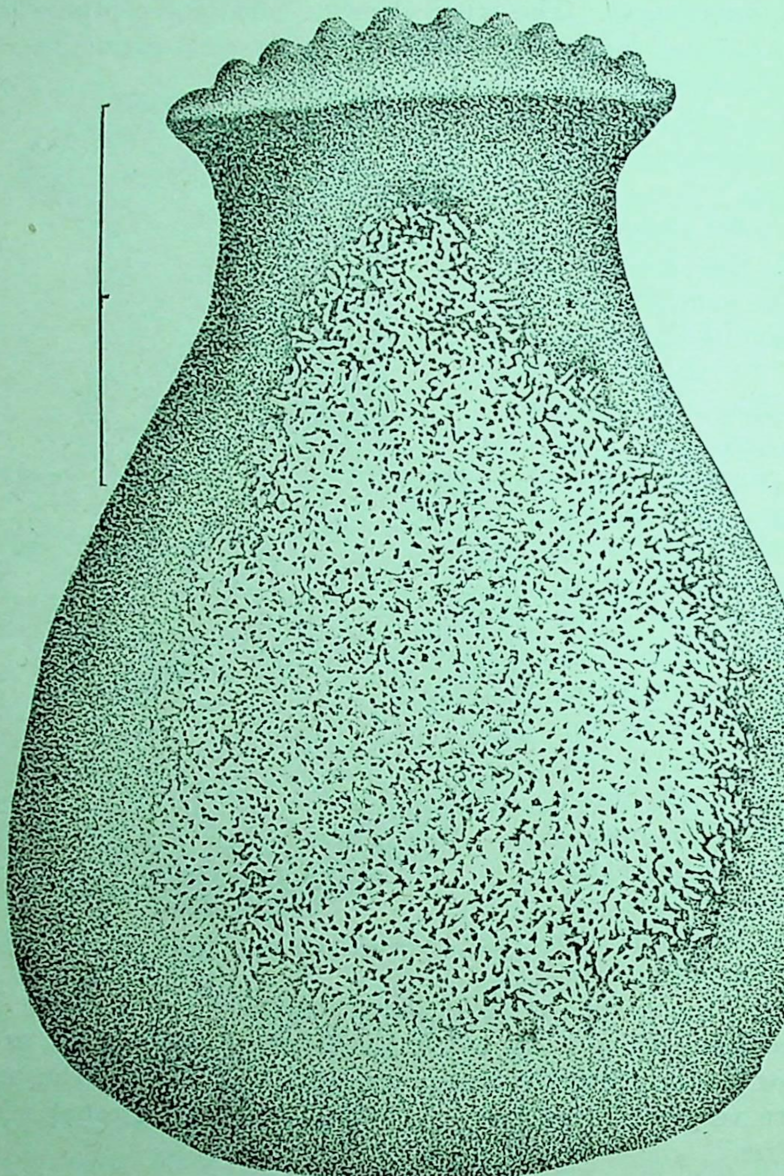


FIG. 19.—Stone implement with indented head. (6.2 inches.)

or rounded, convex or concave, often with ear-like lappets or variously formed lappets, indentations, or perforations. The shaft or shank may be indicated either by incisions on opposite edges or by grooves, narrow or broad, sometimes with a ridge on each side.

The shank is never perforated like the European stone ax for the insertion of a handle, although, as we shall presently see, it is in one instance decorated with an incised figure. The body of the ax may be circular; when seen in profile it is elongated, oval, asymmetrical, and sometimes perforated near the edges. The grooved ax is

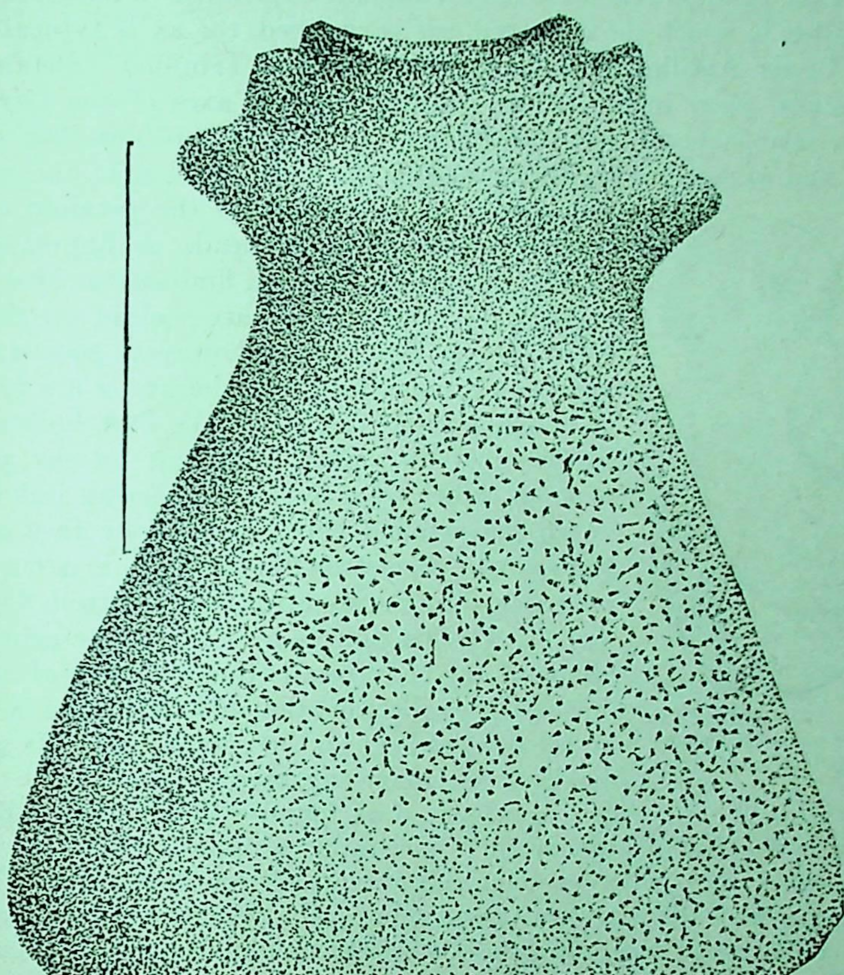


FIG. 20.—Finely polished stone implement. (5.1 inches.)

very rare in collections from the Antilles, there being only a dozen specimens in the Heye collection. All of these are from the Lesser Antilles, the majority from those islands midway between Trinidad and Anegada Passage. The few known specimens recall, in form

and existence of grooves, the ordinary grooved axes of North America, but we can not suppose that they are significant enough or sufficient in number to modify the theory that the Lesser Antilles are archeologically cemented with South rather than with North America.

As the petaloid celt is the most abundant implement in the Greater Antilles, to which the engraved celt is confined, the ax is typical of the Lesser Antilles from Anegada Passage to Trinidad. Petaloid celts also occur in the Lesser Antilles, and the axes of the Caribbean islands occur sporadically in the Greater Antilles, but the celt and ax are practically limited in their distribution in the way indicated. As in the case of the petaloid celt we have specimens with heads or figures engraved on one face, so we find engraved axes or those in which figures are incised on their faces. These figures are, however, geometric, and in no instance known to the writer are faces or human outlines depicted. We find, however, instances of an animal head cut on the poll of an ax which seem to be a connecting link between the petaloid with the head or face and the ax with geometrical design. This group is represented by the so-called fish idol from Cuba (pl. 93, *A*), first figured by Poey. The general shape of the body recalls those of several axes in the Heye collection, the only difference being in the fish head cut on the pointed end. It will be described under engraved celts.

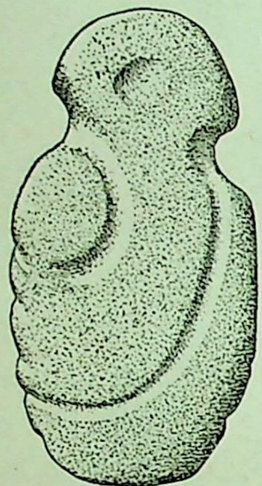


Fig. 21.—Incised ax from Guadeloupe. (5.5 inches.)

Figure 21 represents a rare form of ax found in the Guesde collection in the Berlin Museum, in which the two opposite surfaces are decorated with incised geometric figures which are duplicated. Beginning with the notch on the margin of the implement they form graceful curves, recalling scrolls on a ceremonial baton, which will be described later in this article.

This specimen is described by Prof. Mason, who writes:[91] "A highly ornamented specimen, one portion of which is plain, resembling the edge of a cleaver; the remainder is covered with ornament. Let us imagine this to be a stone ax, the most beautiful in the world. The following characteristics claim our attention: The hafting notches are extended, that on the upper part by a narrow gutter almost parallel with the edge; that on the lower part sweeping outward in a curve which combines the lower portion and both faces in a continuous pattern. This is assuredly M. Guesde's jewel in the ax class. Length, 5½ inches."

[91] Op. cit., pp. 824–825, fig. 196.

Some of these engraved axes did not show the incised figures on the illustrations used by Prof. Mason in describing the specimens.

5. PERFORATED AXES

Several of the large ax-shaped stones from Guadeloupe are perforated at or near the upper margin of the head (fig. 22), suggesting that they were suspended, perhaps ornaments worn about the neck.

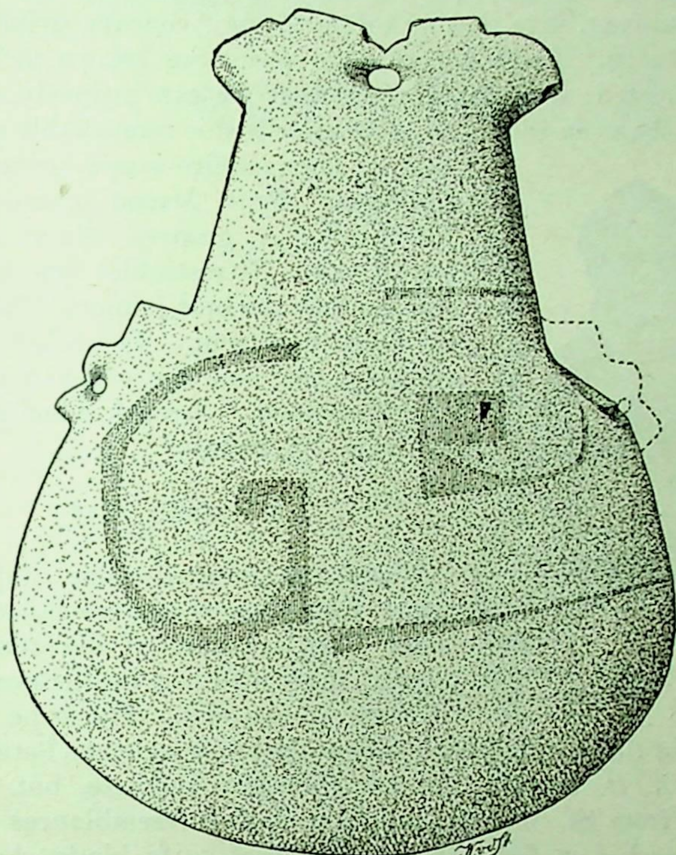


FIG. 22.—Incised decorated stone implement. Guesde collection. (9.5 inches.)

The Guesde collection has several of these axes with perforated heads. Specimens from St. Vincent are fewer in number. Prof. Mason thus describes one of these specimens:[92]

"A finely-polished blade, of brown color. The general outline is that of a shouldered hoe-blade. The edge is quite regular, the tapering sides nearly alike, the neck symmetrical, and the faces continuous nearly to the perforation. The butt is flared out at the sides like

[92] Op. cit., p. 757, fig. 36.

a crutch, the concave of which is occupied by a narrow, perforated ridge. With this should be compared a specimen from St. Vincent (Timehri, I, p. 264, fig. 3). The latter is more ornamented on the upper border, but the body falls far below that of M. Guesde's specimen. A splendid example from St. Lucia is also in the collection of Mr. Cropper. (Timehri, I, p. 263, fig. 2.) Length, 7.2 inches; greatest width, 4 inches."

Figure 23 is the same object as that mentioned by Prof. Mason without comment, save that he refers to the "concave grinding" as very uncommon. There are only two specimens known to have the blade bifurcated; it is doubtful whether we can properly speak of this concavity as an edge, and so peculiar is this remarkable specimen that we may require a new group for its reception. Prof. Mason mentions it as follows:[93] "A grooved blade of dark brown color. It resembles figure 103, excepting that the butt is more distinct and the sides divergent. The edge is much worn by use, and the concave grinding very uncommon. Length, 4 inches; width of blade, $3\frac{3}{10}$ inches."

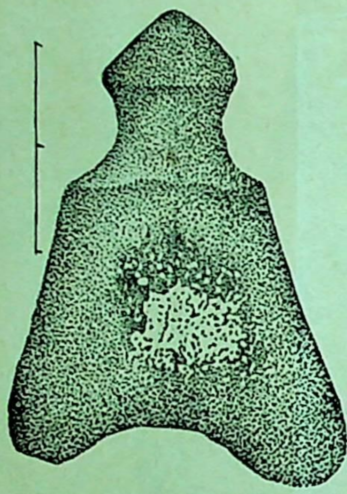


FIG. 23.—Ax with bifurcated blade. (4 inches.)

6. ANCHOR AXES

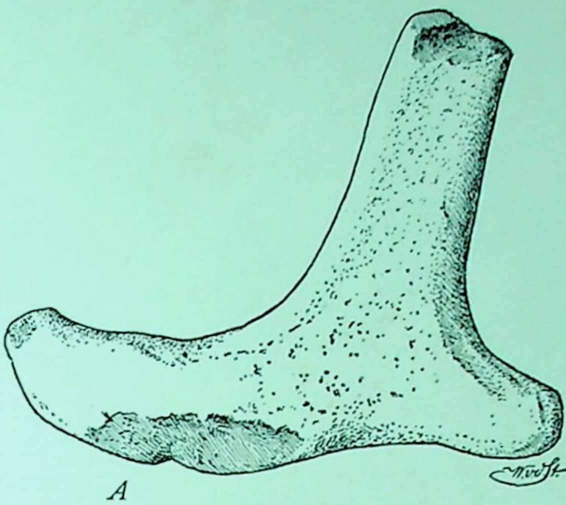
There are several stone implements which from their shape are called anchor axes. They are made of one stone with a central shaft modified into curved extensions at one end. The type is characteristic of the island of Guadeloupe, the two specimens here figured, plate 72, *A*, *B*, from the Guesde collection indicate, but a single specimen from St. Vincent, not figured, has resemblances to them and approaches in form an ax with meat-knife blade closely approaching another group.

7. INCISED AND PERFORATED STONES

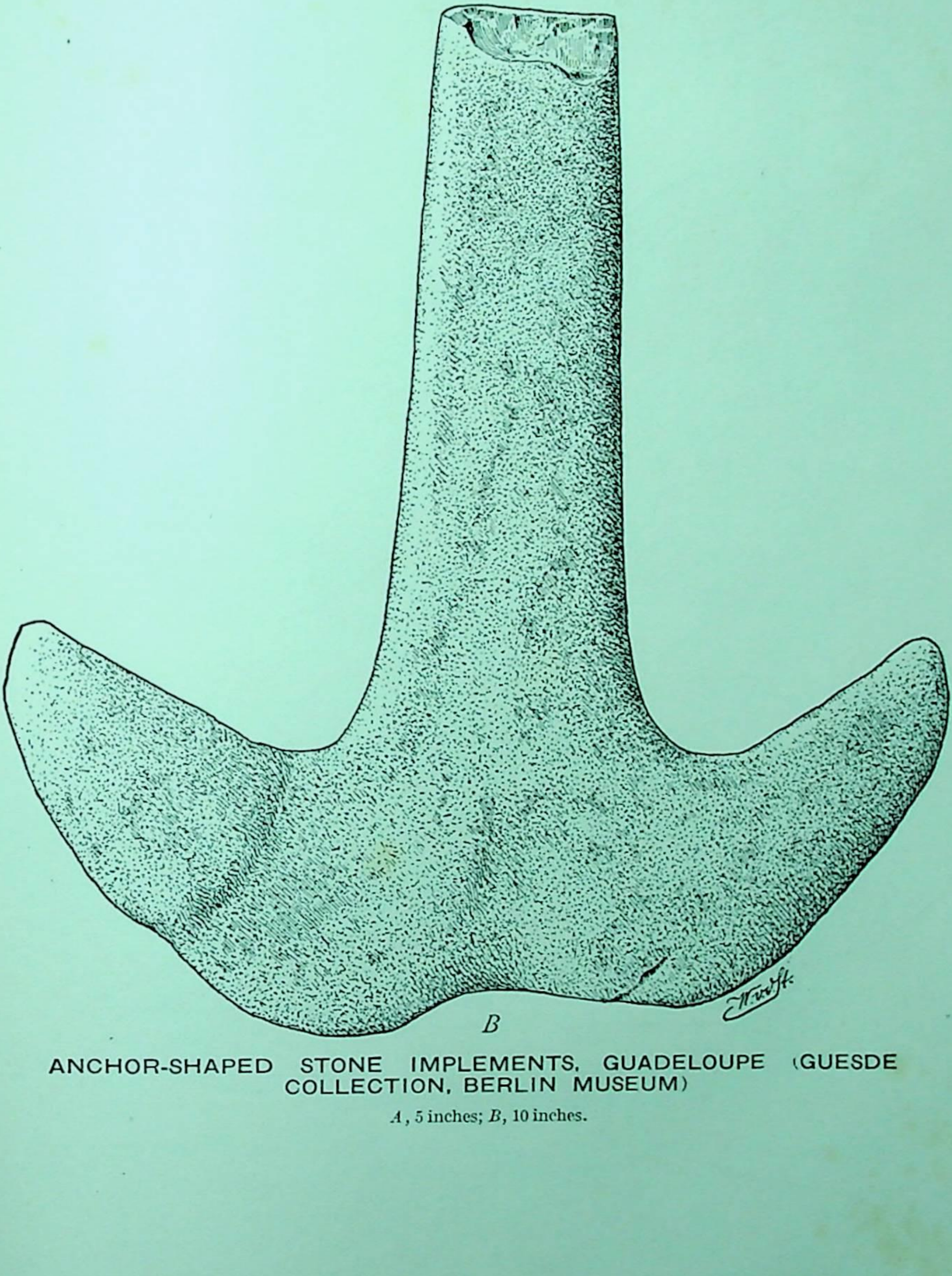
There are several stones in the Guesde collection in the Berlin Museum which are characteristic. These stones (pl. 73, *A*, *B*, *C*). have an oval or ovate form, with the polar diameter slightly less than the equatorial, which sometimes varies, being longer or shorter according to the points of measurement.

The simplest of these (pl. 73, *A*) have a shallow pit at one pole surrounded by a groove and a somewhat deeper furrow around

[93] Op. cit., p. 787, fig. 104.



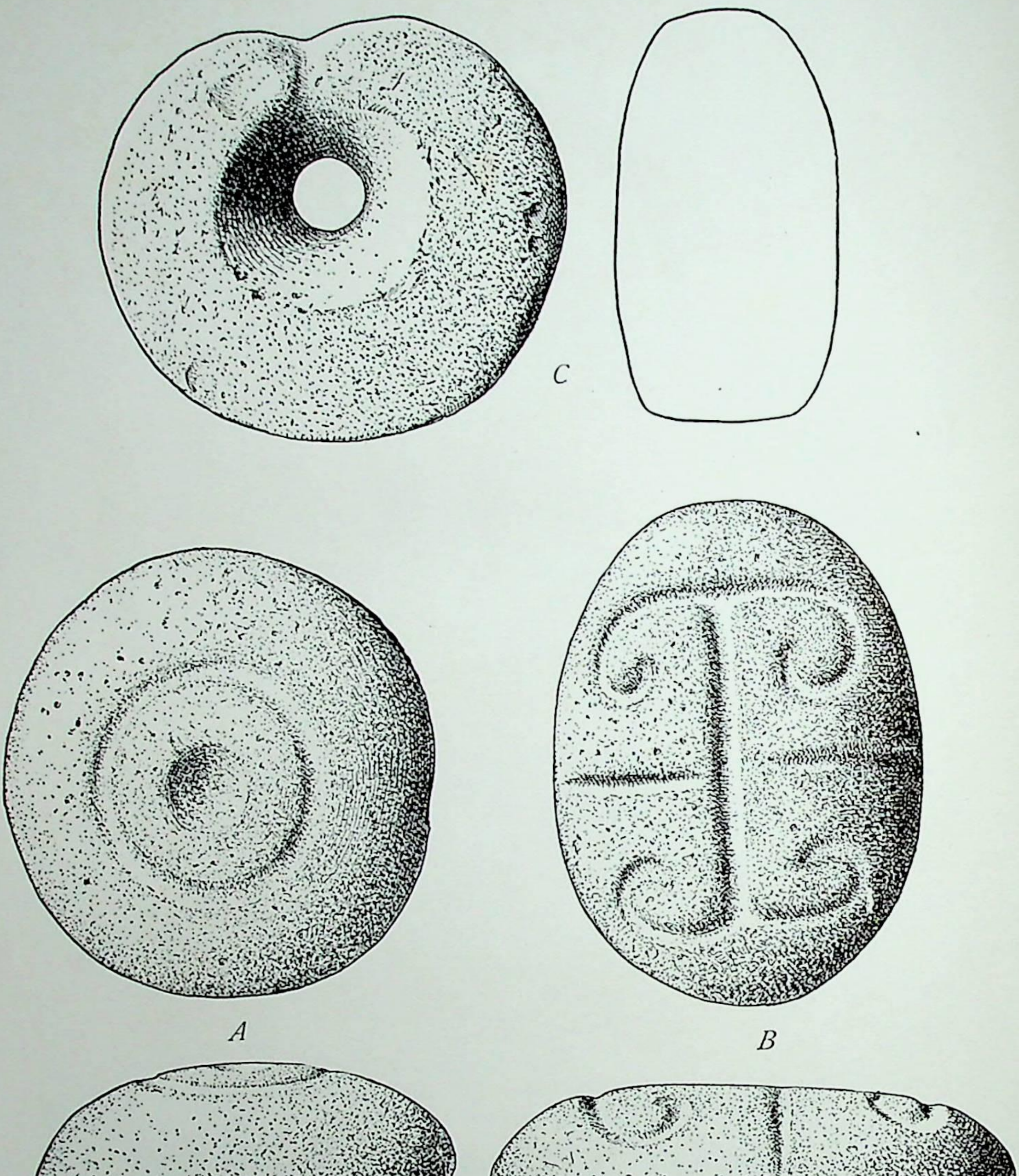
A



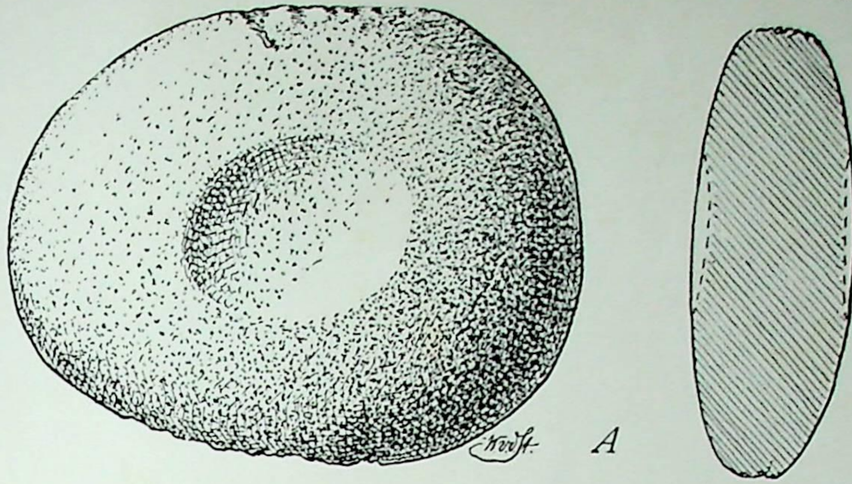
B

ANCHOR-SHAPED STONE IMPLEMENTS, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

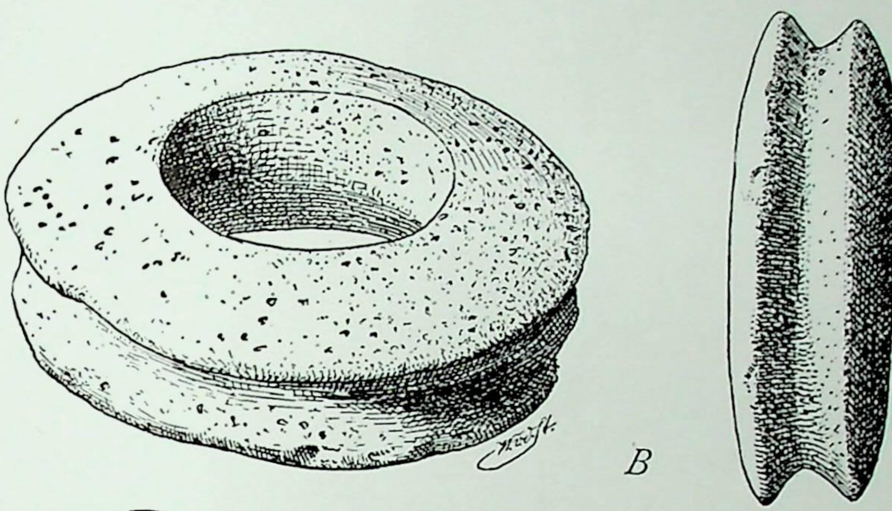
A, 5 inches; *B*, 10 inches.



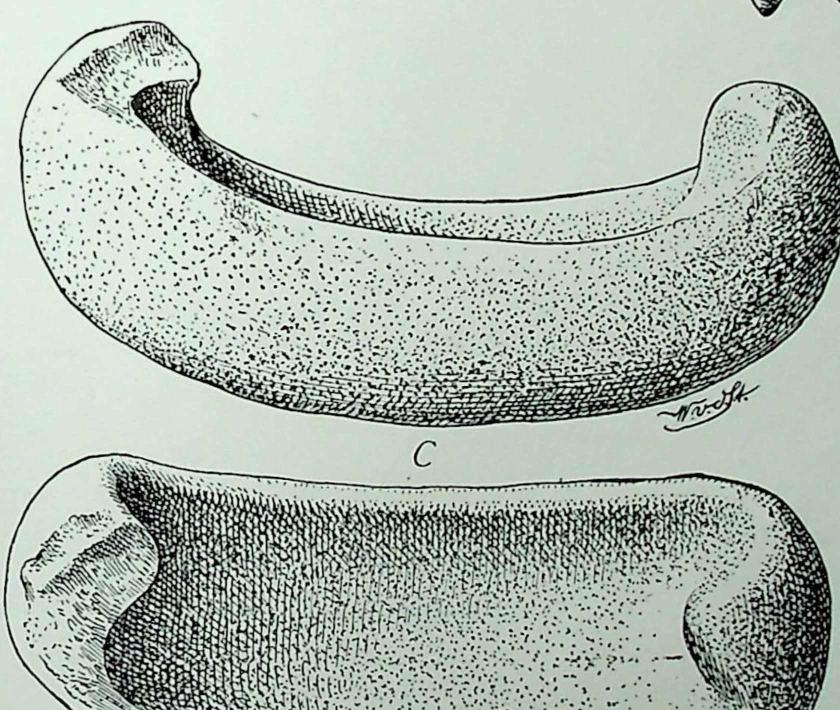
INCISED AND PERFORATED STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)



A



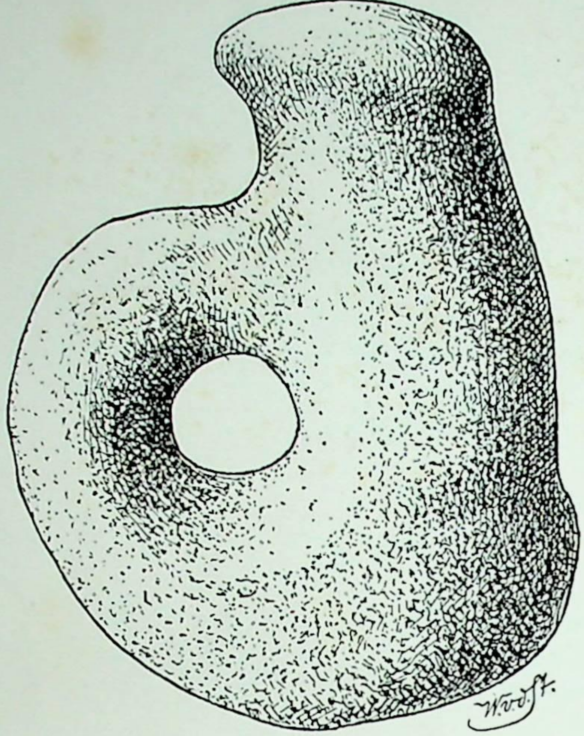
B



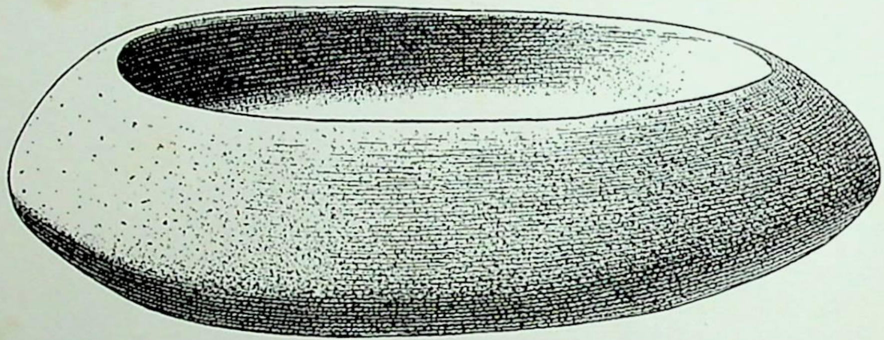
C

PROBLEMATICAL STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

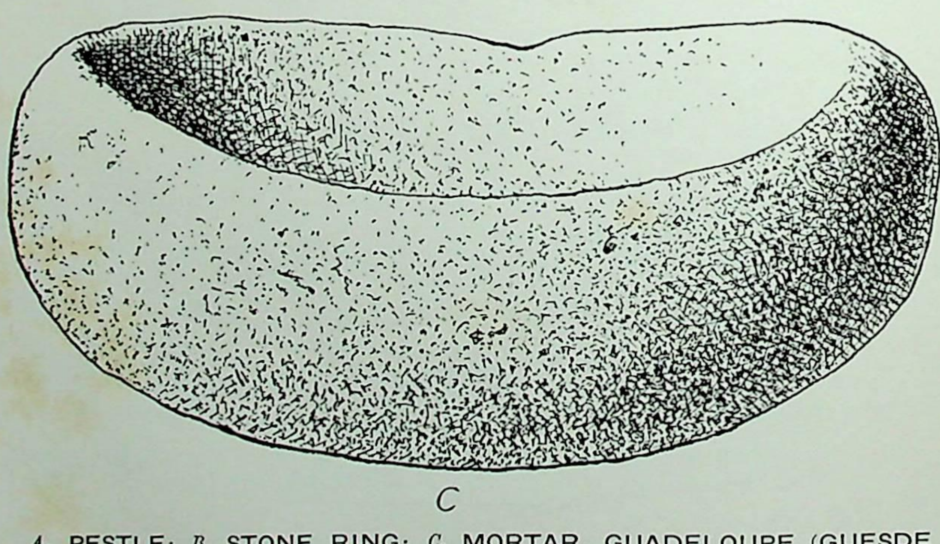
B, 3.5 inches.



A



B



C

A, PESTLE; *B*, STONE RING; *C*, MORTAR, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

the equator. In another figure (pl. 73, *C*) the simplest form of perforated stone is allied to the engraved stones above mentioned, but is perforated by a beveled hole with a furrow at one side extending to the border, which is destitute of a marginal groove.

In plate 73, *B*, the shape from above is oval, the longer diameter being double the shorter. This specimen has on the upper side, turned to the observer, two grooves at right angles to each other, the longer bifurcating at each end and continuing into scrolls on each side and not united with the shorter groove. This object is now in the Berlin Museum and formerly belonged to M. Guesde.

In the specimen illustrated in plate 74, *B*, we have the highest form of the type of perforated stones. The perforation is not beveled and the marginal furrow is very deep.

We find in the Lesser Antilles several perforated stones, some of which may be called rings. Some of these may be likened to the well-known stone collars of Porto Rico.

The late Prof. Mason's reference[94] to one of these specimens is short and differs from his figure: "A stone ring of great asymmetry. This perforation was probably made by pecking, its faces being rubbed down afterwards. Dimensions, 5.2 by 4.7 inches."

One of the most instructive of the holed stones in the Berlin collection is one not heretofore figured, shown in the accompanying figure (pl. 75, *A*). It suggests an unformed implement or idol. Appended to one side there is a projection that reminds one of the knot of a small stone collar. This specimen, now in the Berlin Museum, belonged to the Guesde collection, and so far as known is unique. Its use is unknown.

A ring (pl. 83, *A*) from Carriacou in the Heye collection has some points in common with that last mentioned, but is made of clay and has the representation of the furrow on one face instead of on the periphery. The edge of the perforation is in this case rounded instead of beveled or at right angles.

The stone ring, plate 75, *B*, is beautifully made, and resembles somewhat stone rings from the Totonac region in Mexico.

Plates 74, *C*, and 75, *C*, are mortars, the former boatshaped.

8. PROBLEMATICAL STONES

Among the enigmas in the Guesde collection in the Berlin Museum there are several specimens (pl. 76, *A*, *B*, *C*, *D*) the use of which is problematical, and so far as form goes, they belong to none of the types thus far described.

[94] Op. cit., p. 817.

One of these from Guadeloupe is shown in figures 24 and 25. Two distinct regions may be recognized in the object as seen from above—one a circular body, the other an extension on one side forming a handle.

The body has a slightly curved upper surface and a flat underside, the latter so smooth that the function of a grinding implement is readily suggested. The smooth, flat surface is continued without break into the lower side of the handle, which is also polished, evidently by long-continued rubbing.

Although the upper surface of both body and handle is slightly convex, the two curves are continuous and bounded by a shallow furrow, a short distance from the margin.

The handle of this problematical implement (fig. 25) is crossed by 10 parallel straight grooves connecting the marginal furrow. At the point from which the handle arises from the body of the implement the marginal furrow is enlarged on each side into a deeper circular depression, suggesting places where the fingers might grasp the object, the palm of the hand resting on the handle. Held in that way, the grooves on the handle might enable one who used the implement to get a firmer hold in moving it back and forth as a grinding implement.

The only known reference to the object is found in Prof. Mason's account of the Guesde collection,[96] and is as follows:

"A very highly polished implement of dark brown color, and presenting one of those enigmatic forms that are ever springing upon us in the West Indian area. The general outline is that of a ladle. Upon the reverse the face is flat, but the broad portion of the obverse is slightly concave [sic] and bordered by a molding which is carried nearly to the narrow portion. The latter is lingulate in form and has 10 concentric ridges terminating in the border, which is fluted externally. There is no duplicate of this form. Length, 12¼ inches."

There are many stone objects in the Guesde collection the use of which it is difficult to determine. One of these is shown in plate 79, *D*, *E*. This object is flat, triangular in shape, with two sides slightly curved and rounded, the remaining side square with two ears or rounded extensions imparting an irregular heart-shape to the object when seen from one face. A lateral view shows that the object is slightly warped at the point and obscurely convex on one surface, flat or concave on the other, but that the warped point prevents the stone from being used as a grinder, as neither surface could be made to fit flatly on another surface, which a grinding implement would imply. The object is smooth, well made, and evidently adapted

[96] Op. cit., fig. 171, p. 815.

to a purpose now unknown. Its form is, however, so far as known, unique, although we have certain approximations, as the circular stone obtained by the author from Archbishop Meriño and figured in his Aborigines of Porto Rico.[97]

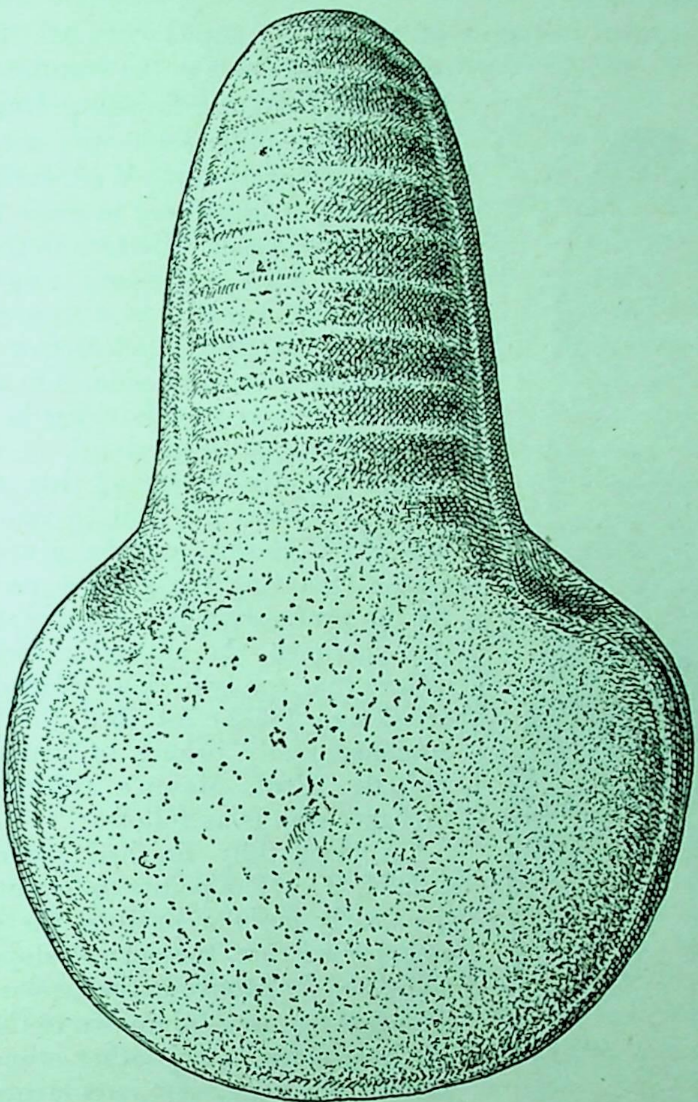


FIG. 24.—Problematical stone. Guadeloupe. Berlin collection. (12.25 inches.)

No implement is more enigmatical than that shown in the accompanying illustration (pl. 76, *A*, *B*) from the Berlin Museum. At first sight we might suppose this to represent a new form of ax, and the curved cutting edge at one end seems to support such an iden-

[97] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. xxxiii, *d*.

tification, but the break in one side (pl. 76, *B*) is unlike any feature in the many specimens thus far described. It may, however, be identified as an unfinished ax, or one the outlines of which have been roughly worked out and then laid away to be polished and finished at some later date.

Many similar instances of unfinished implements are found in caches, which lead to the surmise that the habit of partially finishing implements and putting them aside was not uncommon in the prehistoric West Indies.

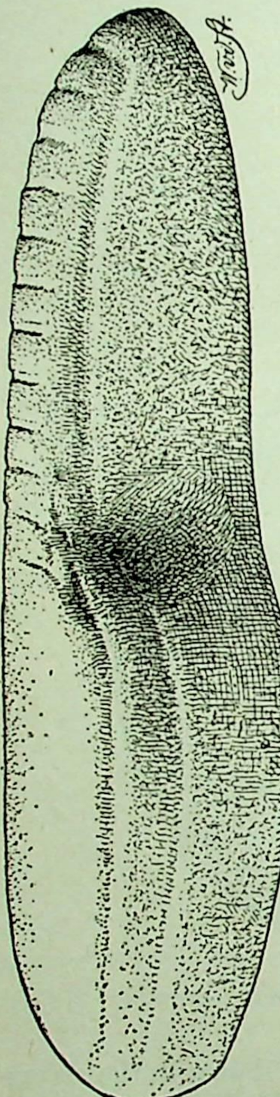


Fig. 25.—Lateral view of fig. 24.

The object illustrated in plate 76, *C*, *D*, is from the Guesde collection in the Berlin Museum. This implement might more logically be classified as a grooved stone ax, having a well-marked furrow with encircling ridges on each side. On the blade side of the groove this ridge is slightly larger than that on the head.

The beautiful finish of this specimen (pl. 74, *B*) did not fail to impress the late Prof. Mason, and he gives a side view illustrating the groove on the rim. As the perforation is not countersunk in this specimen, the author is inclined to believe that the two views (Mason's figs. 185–1 and 185–2) ascribed to the same specimen really belong to two different objects. Prof. Mason's reference[98] to this specimen is as follows:

"A beautifully finished stone pulley [pl. 74, *B*]. The points to be noticed are the nearly circular outline, the countersink perforation, the curved slope of the sides, and the groove in the circumference. This last feature is unknown to the author of these notes in any other stone implement. The edge view is enlarged to exhibit the groove. Diameter, $1\frac{8}{10}$ inches."

Guadeloupe has furnished several prehistoric mortars which as a rule have the same form as those from the St. Vincent area and are almost identical with others in various islands from Trinidad to Cuba. This uniformity is to be expected on account of the simplicity

9. MORTARS

[98] Op. cit., p. 819.

of these implements. Pestles from different islands differ more than mortars, their handles admitting of different ornamentation.

The simplest form of Guadeloupe mortar[99] is a slab of stone with a shallow curved depression on one side. Examples of this type are numerous, and, as they possess no features characteristic of typical areas, they need not be considered.

In the mortar (pl. 74, *C*) next to be considered, the longer axis has been elongated to such an extent as to give the object a boat shape. This specimen, now in the Berlin Museum, is said to have come from one of the Lesser Antilles, but from which is not definitely known. In all these objects the cavity is much smoother than the outside surface and shows by the way it is worn signs of long-continued use. The size of these mortars points to their use in grinding of some cereal, as maize, rather than roots or fruits. They do not greatly differ from the forms of mortars found on the mainland of South America, where, however, flat slabs of rock were often used in grinding corn. It is, of course, not necessary to suppose that mortars from the Lesser Antilles were used for maize, even if their shapes are similar to those where corn was a food cereal.

In a specimen (pl. 75, *C*) in the Berlin Museum we have a true mortar which has a spheroidal form with a circular cavity of about half its longer axis on one side. The side view of this specimen differs from that above mentioned in the thickness of its walls, but especially in the character of the depression.

The accompanying representations (figs. 26, 27) show a unique stone object from the Guesde collection in the Berlin Museum, concerning the use of which several suggestions have been made, but which has never been satisfactorily identified. When seen from above the form reminds one of the skeleton frame of certain cup-shaped sponges in which we have a hemispherical knob or attachment to the bottom of the sea from which arise walls flaring outward, leaving a deep concavity and wide-open mouth. The interior wall is smooth, the lips rounded, and the outer surface crossed by radiating grooves alternating with elevations extending from the knob-like base near which they are deepest, becoming shallower as they approach the margin. Provisionally this object is identified as a mortar.

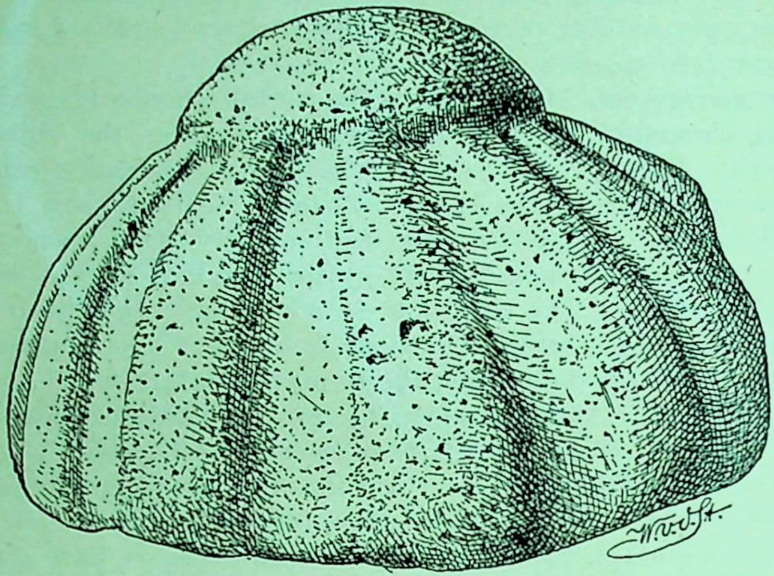
The specimen is thus referred to by the late Prof. Mason[1] in his account of the Guesde collection: "An unique specimen of light-brown color and quite rough. It is hollow like a mortar, but the most remarkable feature about it is the series of flutings on the surface. M. Guesde is of the opinion that it was rather a cover for something than a grinding stone. In deference to this opinion it is drawn with the broad part downward. Height, 6½ inches."

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[99] Several of the Guesde mortars have been described by the late Prof. Mason.
[1] Op. cit., p. 814.

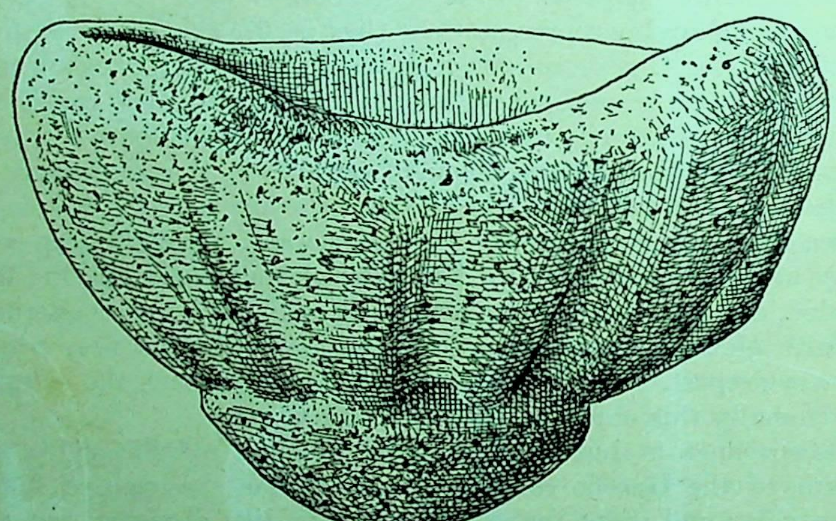
10. PESTLES, GRINDERS, AND HAMMERS

The simplest form of pestle from Guadeloupe is an enlarged stone of a form to fit the hands, but with no attempt at shaping or super-



A

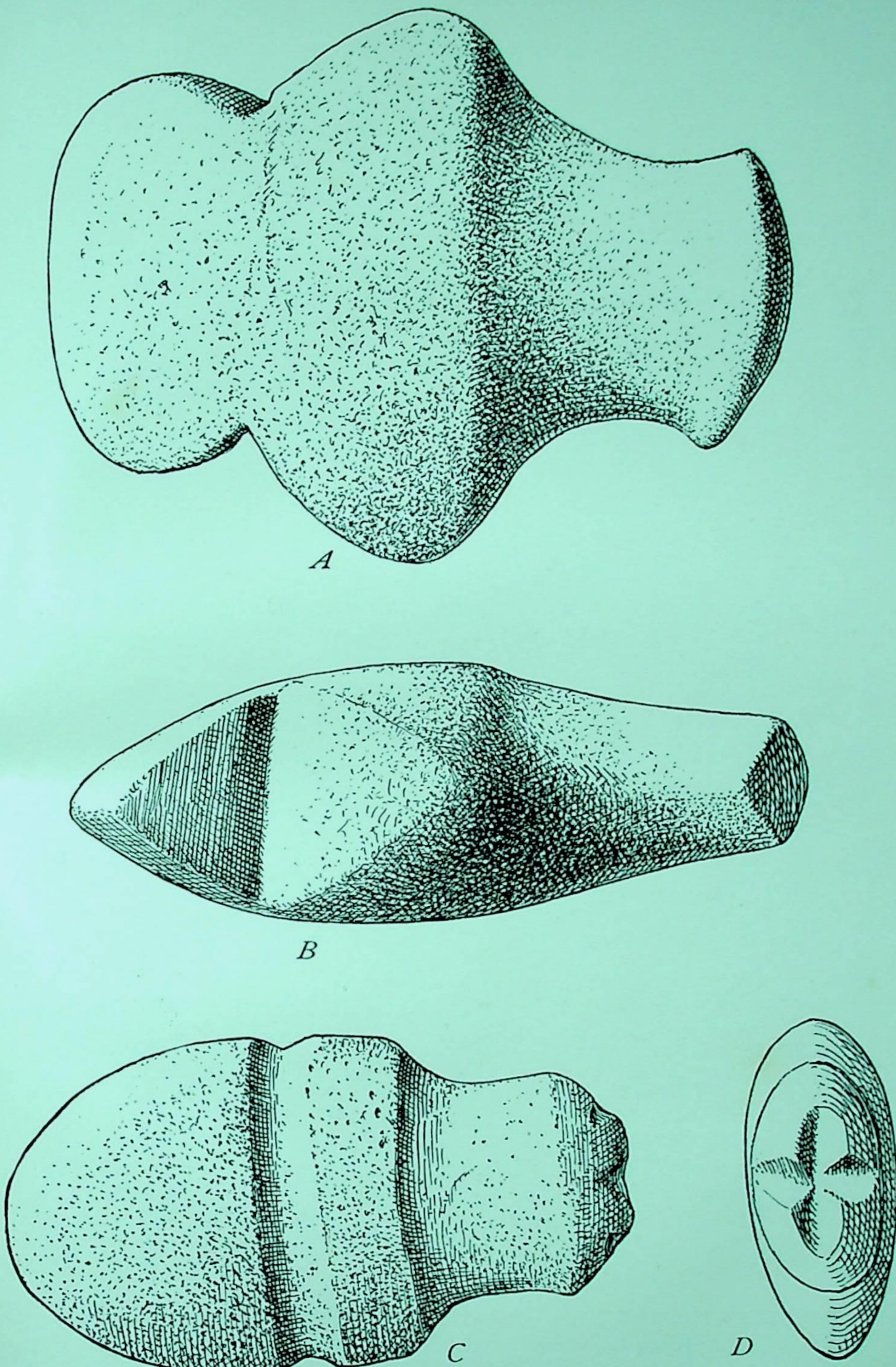
FIG. 26.—Unidentified stone object resembling a mortar. (6.5 inches.



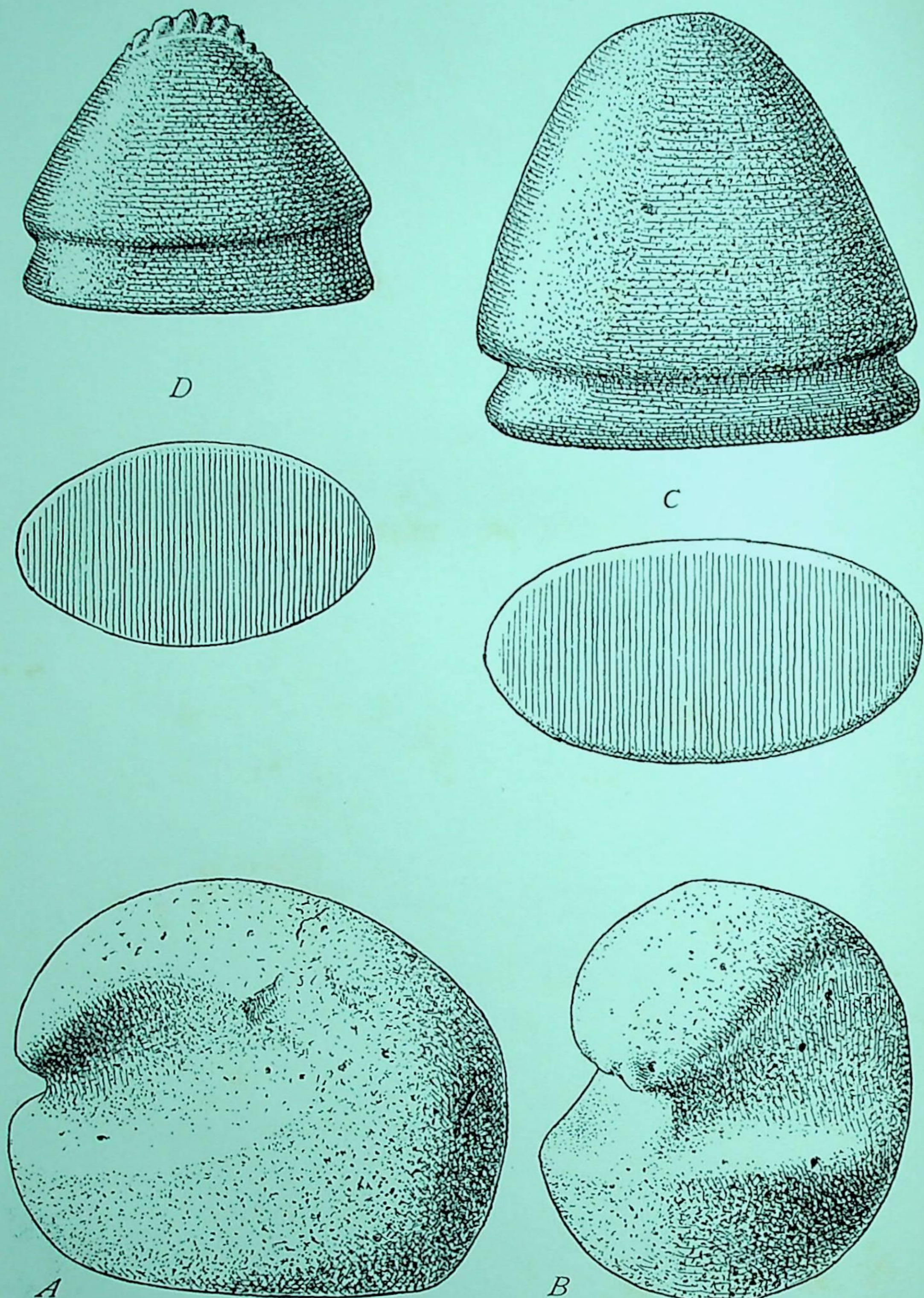
B

FIG. 27.—Unidentified stone object resembling a mortar. (6.5 inches.)

ficial ornamentation. Objects of this kind are numerous on all the West Indian islands, but the fact that they show no evidence of having been artificially worked has led to their having been overlooked by collectors.



PROBLEMATICAL STONE IMPLEMENTS, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)



PROBLEMATICAL STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

C, 1.5 inches; *D*, 1.19 inches.

One of the simplest forms of these implements is shown in the following series of Guadeloupe pestles (pl. 77, *A*, *B*). Here we have a spherical water-worn nodule evidently gathered from some river bed, showing depressions on two opposite sides in which the thumb and forefinger conveniently fit. This stone might have served for two purposes; it may have been a pounding and a rubbing implement, the depressions or pits serving simply to secure a good hold while in use. These handholds are generally situated at the ends of a line passing through the middle of the object. This object, now in the Berlin Museum, is from the Guesde collection and is described by Mason.

Conical Stones

Among the peculiar forms of stone objects from the St. Vincent area may be mentioned certain conical specimens, in some instances like the fourth type of three-pointed stones from Porto Rico. These are more like amulets than idols and were possibly used as amulets. A conical stone specimen of this type is figured and described in the author's Aborigines of Porto Rico.[2] The general form of these stones, as their name indicates, is conical, their longer diameter being about twice that of the shorter. When placed on one side, which forms a natural flat base, their height is about the same as their length. The one feature besides shape that all these objects have in common is the groove girting the whole circumference and following the rim of the base.

The several variations in shape of these cones are mainly in the breadth of this groove and modifications in the form of the cone, some having broad, others narrow grooves about the margin of the base, while a number have a serrated apex. In a few a ridge separated by deep grooves occurs on the sides of the cone. These conical objects (pl. 77, *C*) are not always made of stone, a few specimens existing in local collections being of shell and at least one of bone. None of these show any indications of a head or face cut upon them and are devoid of superficial decoration, aside from that above mentioned on the apex. It has been suggested that these stone or shell objects were formerly attached to a handle and served as weapons, but the small size and fragile nature of those made of bone and shell would prohibit their use as striking implements.

The accompanying figure (pl. 77, *D*) shows one of these stones, the height of which is somewhat less than the greater diameter, as indicated in the figure. As is common in the majority of specimens, the curve of the basal groove is more gradual on the lower

[2] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., p. 98; pl. xxiii, *l*.

side than on the upper, which fact, so far as it goes, is opposed to the theory that it was lashed to a foreign body. This specimen is from the Heye Museum.

The specimens (pl. 78, *A*, *B*, *C*) are pestles so fashioned that we begin to have a differentiation of a disk or enlarged base in order to secure a greater grinding surface, and a handle ending in a knob. When the disk or base is seen from the side, it appears to be convex, flattened at the upper surface. Similar forms (pl. 78, *D*, *E*) resembling meat choppers in profile have been mistaken for weapons by Prof. Mason in his account of the Guesde specimens, but the indication is that these, like the one considered, should be called pestles or grinders. This form of pestle appears to have been very abundant in Guadeloupe.

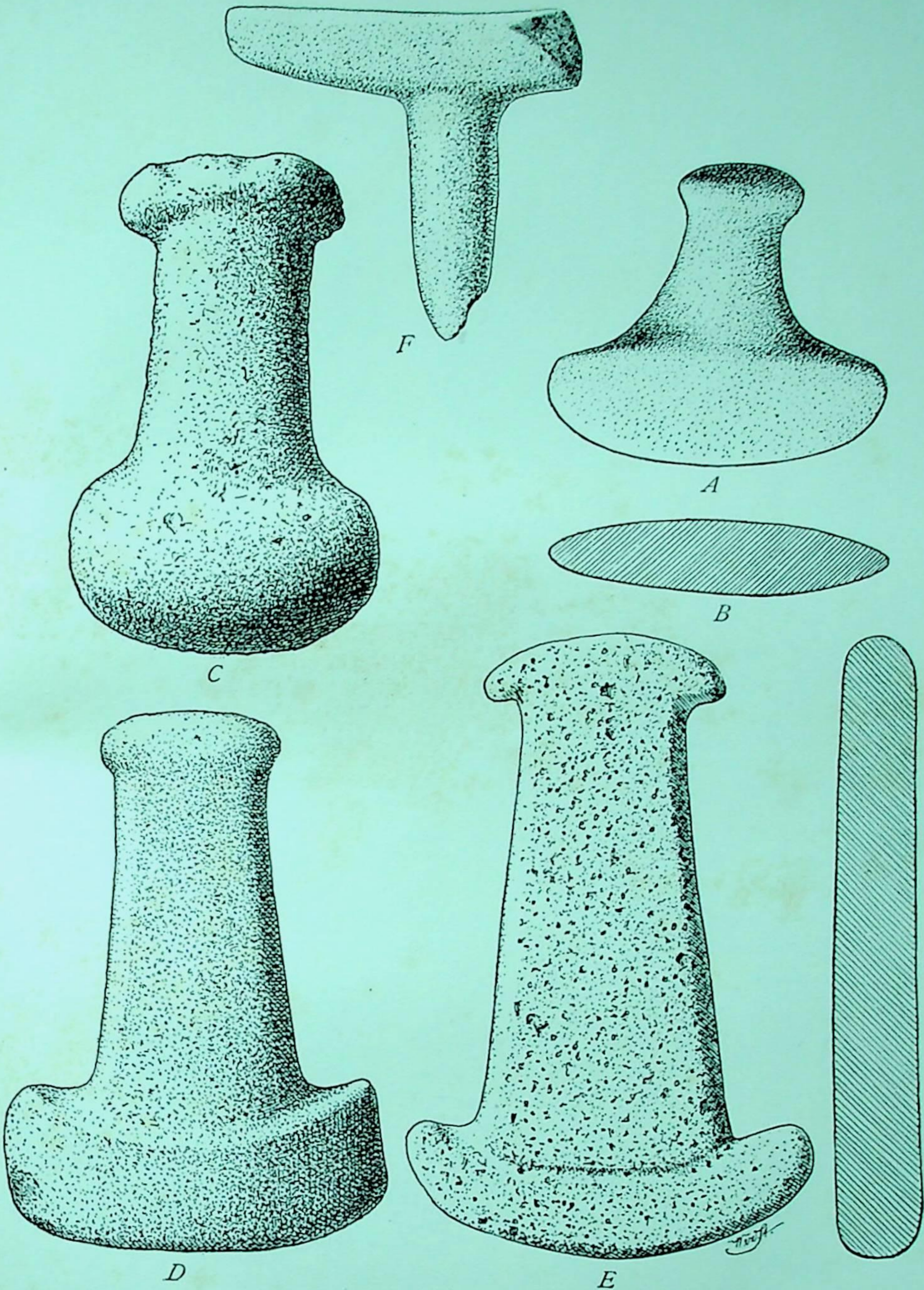
In another specimen, also from the Guesde collection, the basal part or disk is globular when seen from the side and is surrounded by an enlargement which may have been carved into a rude figure, a character very pronounced in Santo Domingo pestles.

The implement shown in plate 79, *A*, in the Berlin Museum, is one of the characteristic forms of pestle in the Guesde collection. In this specimen the base is massive, and when seen in profile it will be noticed that the outer upper edge is slightly curved inward, a feature that becomes very pronounced in several specimens. The large size of this object suggests that it was used for bruising roots rather than for grinding grains, a function which it may share with several other specimens.

The striking feature of the next specimen, also from the Guesde collection in Berlin, as shown in plate 79, *B*, is the almost abnormal enlargement of both base and head, imparting to it a spool shape when seen in profile. The two ends of a dumb-bell object have their edges turned toward each other so that in profile they have crescentic outlines most pronounced in the basal region. This implement, like the preceding, was probably used in bruising roots rather than in pounding grains of corn.

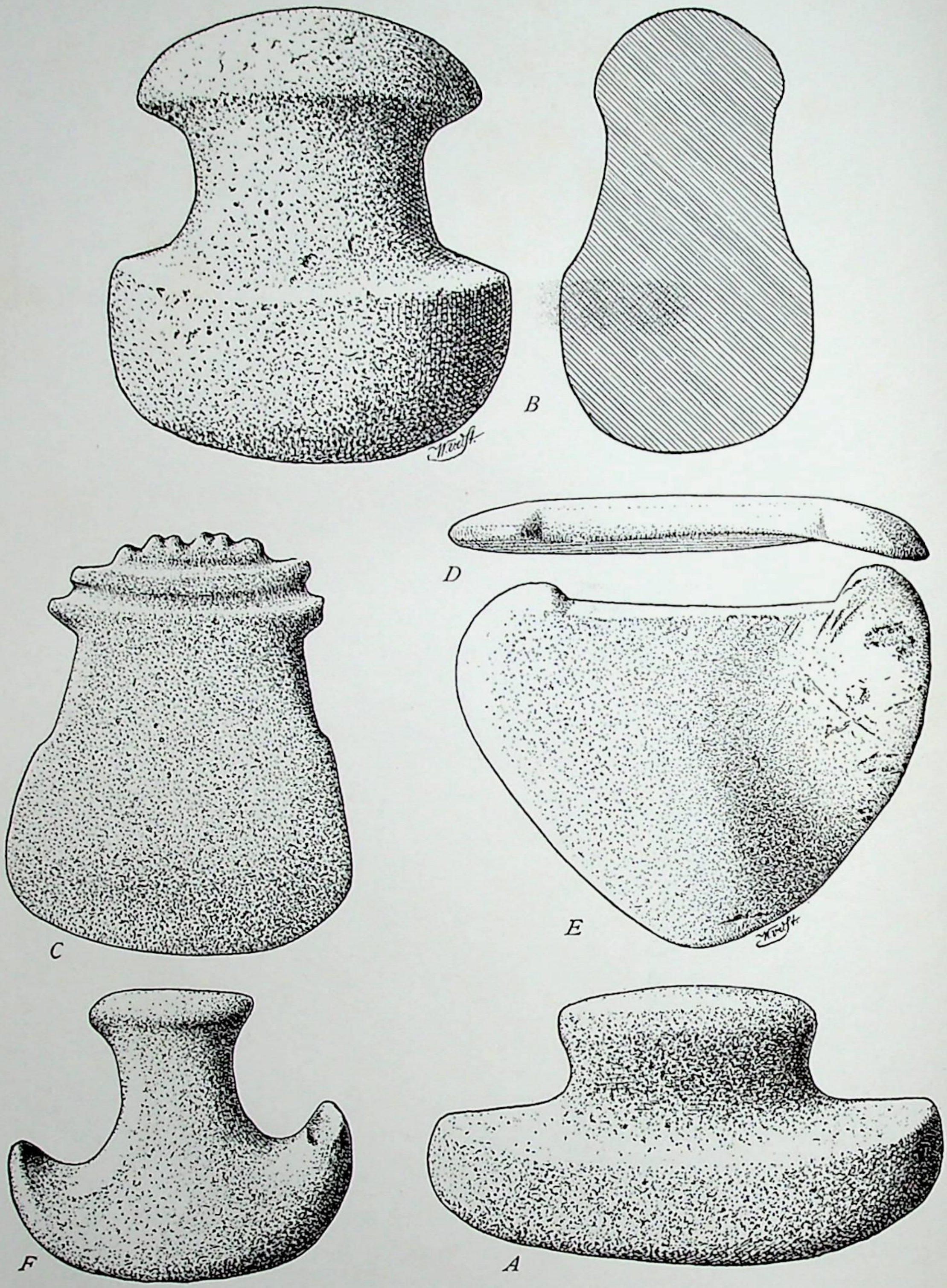
Plate 79, *C*, is an ax of the characteristic St. Vincent type, with groove and extensions on the apex.

The flattened form of grinders in which the base is extended on each side into horns is shown in the next specimen (pl. 79, *F*), also from the Berlin Museum. The object here takes the form of a chopper with blunt edge; the handle is short with termination enlarged. This type of pestle is represented by several specimens in the Guesde collection, all of which have as the common feature the extension of the base on each side and flat opposite faces.



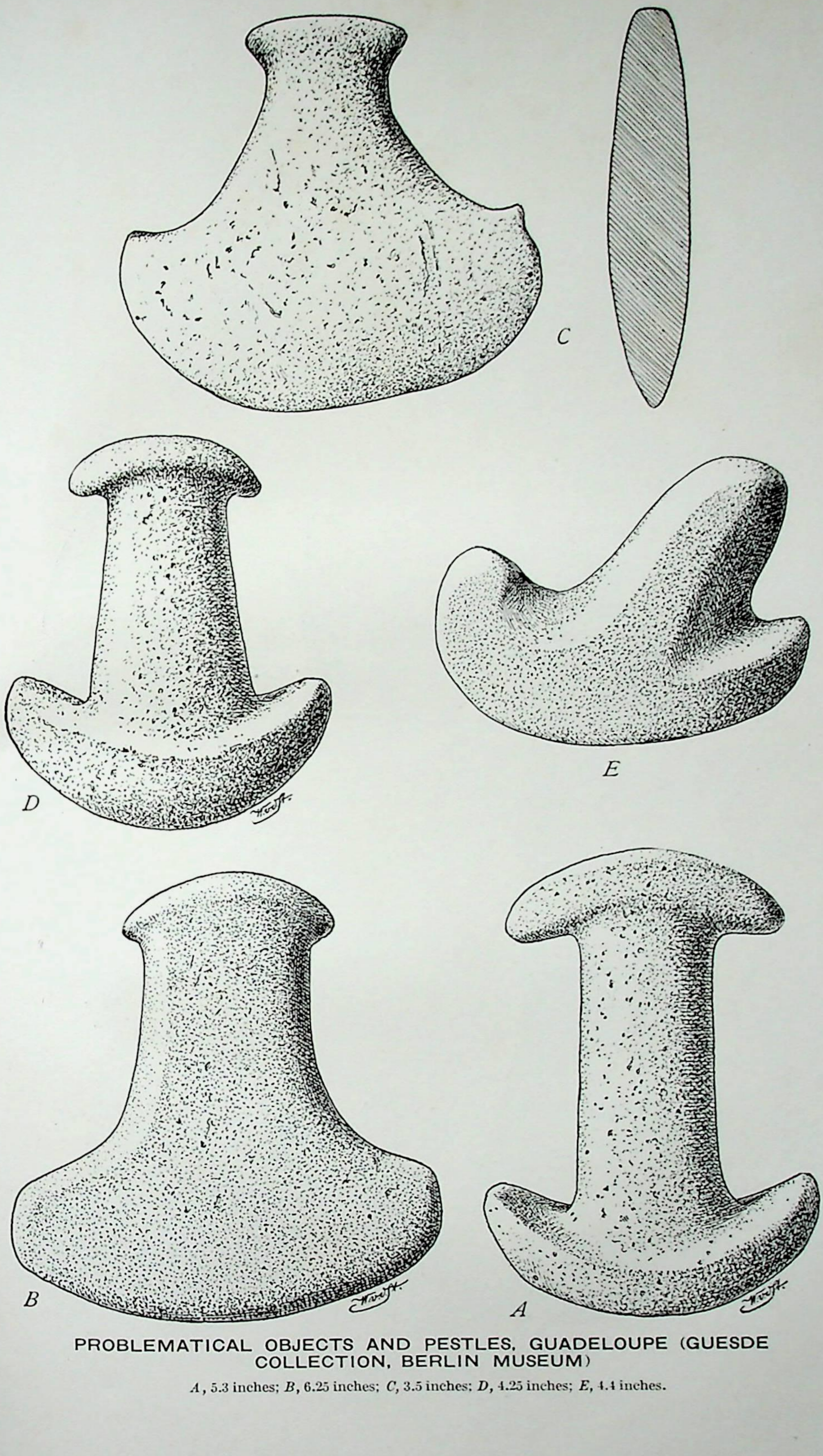
PESTLES AND PROBLEMATICAL STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

A, 6.25 inches; *B*, 5.5 inches; *C*, 6 inches; *D*, 6 inches *E*, 6 inches.



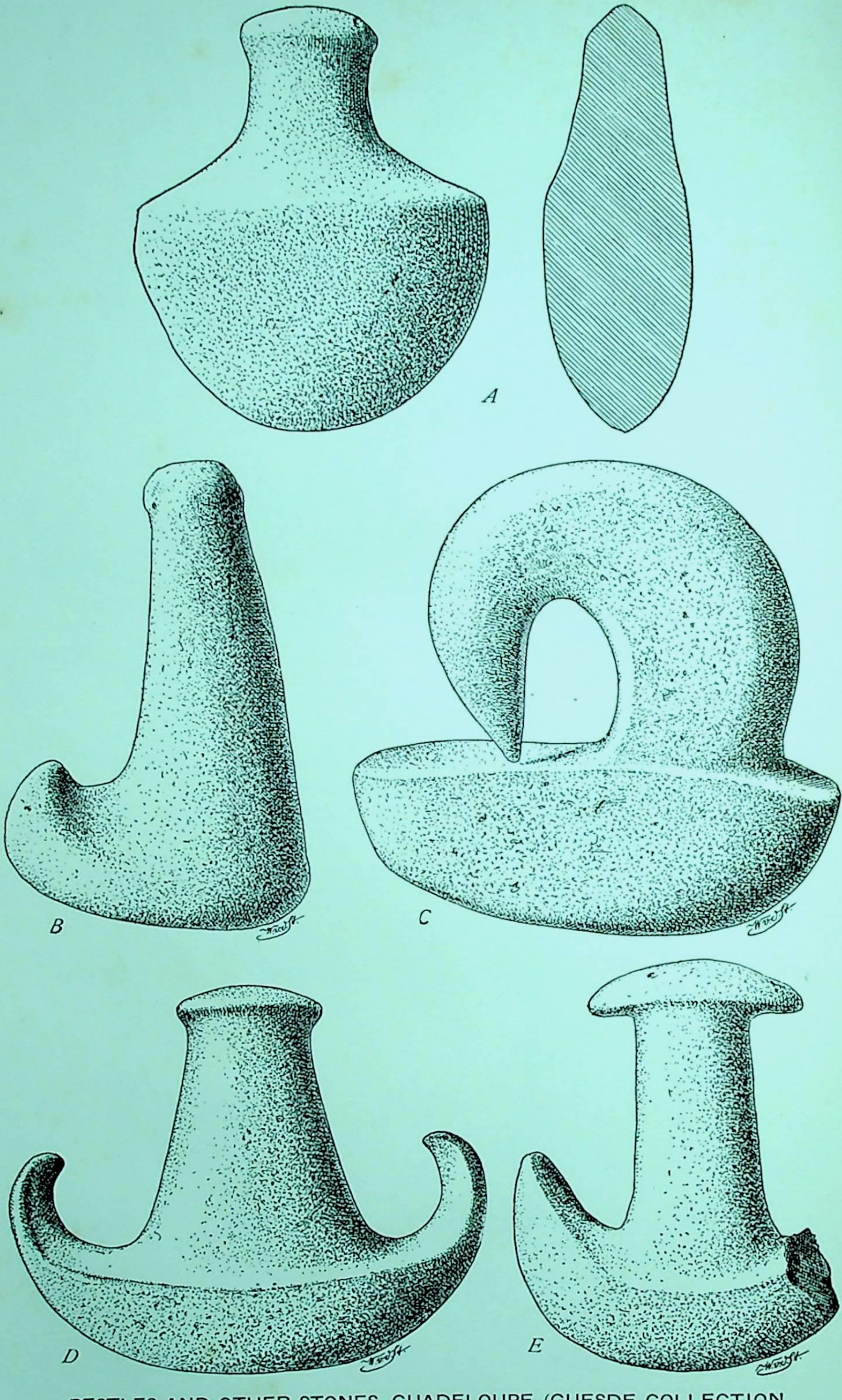
PESTLES AND PROBLEMATICAL STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

A, 6.2 inches; *B*, 4.88 inches; *D*, 5.2 inches; *E*, 5.2 inches.



PROBLEMATICAL OBJECTS AND PESTLES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

A, 5.3 inches; *B*, 6.25 inches; *C*, 3.5 inches; *D*, 4.25 inches; *E*, 4.4 inches.



PESTLES AND OTHER STONES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

A, 5.8 inches; *B*, 15.5 inches; *C*, 5.6 inches; *E*, 5.25 inches.

A spool-shaped grinder (pl. 80, *A*) is figured and described by Prof. Mason[3] as follows: "A grooved implement of light-brown color. It is introduced here to follow figure 119 on account of similarity in groove. The ax function is lost in that of the smoother or rubber. There is a great deal of nice work on this example; indeed, as a work of art it is nearly faultless. The furrows of the sides continued across the bottom of the shaft or neck below give a pleasing impression. Length, $6\frac{7}{10}$ inches; width of lower blade, $4\frac{1}{2}$ inches."

A similar specimen (pl. 80, *D*) was thus described by Prof. Mason,[4] who regarded it as a hammer. There are several reasons which lead the author to class this rather as a pestle, for the term hammer implies a handle, which is hardly necessary in the interpretation of this object.

"A bell-shaped hammer of blackish color. The very large curved base is not unknown to hammers or pestles outside of the West Indies. Several of nearly the same shape may be seen from the Haida Indians in the National Museum. The offset on the rim below at the base of the neck is unique. (See Timehri, III, pl. 10, fig. 19.) Height, $5\frac{1}{2}$ inches."

This implement (pl. 80, *E*) is one of the few rubbing stones in which the handle is somewhat asymmetrical, and while it has some resemblances to a pestle, it has none to a rubber or grinder. As stated above, like the Eskimo knife, it would "fit the artisan's hand." It is figured and described by the late Prof. Mason [4a] in the accompanying quotation. It will be seen on consulting his figure that there are certain differences between the two which are important, although not great enough to lead to any modification in interpretation.

"A carved rubbing stone, of brown color. The slanting column and much-curved base, as well as the lateral flutings, extending everywhere except along the bottom, are noteworthy features. The Eskimo of Norton Sound and northward excel in fashioning ivory scraper handles to fit the artisan's hand. At Sitka the Thlinkit Indians also cut out the upper portion of the stone hand-maul to fit the hand. Length, $4\frac{4}{10}$ inches."

Plate 81, *A*, represents an implement in the Guesde collection in Berlin which may have been used as a wedge, although it has resemblances to an ax. It has a form not unlike some of the rubbing stones.

The specimen (pl. 81, *B*) is one of the elbow-shaped, asymmetrical forms of grinders, having an extension on one side of the base and an elongated handle slightly enlarged at one end. This object is in the Berlin Museum, and apparently from the Guesde collection, although not figured by Prof. Mason.

[3] Op. cit., p. 794, fig. 120. [4] Op. cit., p. 804. [4a] Op. cit., p. 807, fig. 157.

The specimen (pl. 81, *C*) is a unique grinder or pestle, the handle of which tapers to a point which is gracefully bent over so that it almost touches the flattened top of the base. This object has been placed by some authors among problematical stones from the Lesser Antilles, but its general resemblance to pestles or pounding implements is close enough to lead to its association with that type. As an example of prehistoric stone cutting it is unsurpassed in the West Indies.

The unique character and admirable workmanship of this specimen has already been commented upon by the late Prof. Mason,[5] whose reference to it is as follows: "The object is entirely unique, and indeed outlandish to the Antilles. It is admirable in workmanship and has been preserved without a scratch. The material is mottled green and brown. It would not be difficult to guess, granting this to be genuine, that the process of stone carving went on after 1493, the year in which Columbus discovered Guadeloupe, and that some ingenious lapidary had undertaken to imitate a hook in the tackle. There is nothing improbable in this, for the Haida slate carvers to-day imitate steamers and other inventions of the whites in making their curious pipes. Height, $5\frac{6}{10}$ inches."

This is as remarkable a specimen as it is rare, so far as known, unique and worthy to stand as the best known example of Antillean stone working.

Of the most beautifully made of all the grinders two are represented in plate 81, *D*, *E*, of specimens in the Berlin Museum formerly in the Guesde collection. These wonderful examples of stone working have the bases prolonged into curved horns at opposite ends of their longest diameters. The handles taper uniformly to a head slightly enlarged and convex above. The shortest diameter of the base is slightly greater than the lower portion of the handle.

This is certainly a remarkable specimen of Stone Age work, quite equal in technique to stone collars or zemis from the Greater Antilles.

ST. KITTS

The island of St. Christopher, or, as it is commonly called, St. Kitts, was known to the Carib as Luiwa, the fertile land, on account of its great fertility. The wealth of archeological evidences indicates that it was once inhabited by a large aboriginal population devoted to agricultural pursuits.

The archeology of St. Kitts and Nevis[6] has attracted the attention of local students, and is well considered in an instructive article by

[5] Op. cit., p. 809.

[6] From the absence of aboriginal place names of Indian derivation in either St. Kitts or the neighboring island, Nevis, it appears that the Indians were early exterminated on these islands.

Dr. C. W. Branch.[7] Since the publication of that paper Mr. E. Connell, an old resident of St. Kitts, who furnished much of the data to Dr. Branch, has added to his collection many prehistoric objects, as yet undescribed, which greatly enlarge our knowledge of the archeology of these islands. There are several specimens from St. Kitts in the Heye collection and in the insular Carnegie Library which are not incorporated in Dr. Branch's excellent article.[8]

The author visited several mounds and other antiquities of this island to determine the typical sites where stone and other implements were found and visits were made to numerous pictographs referred to by Dr. Branch.[9] He spent some time in studying the many objects lately acquired by Mr. Connell and examined another small undescribed collection.

Evidences of the prehistoric character of the culture in St. Kitts are afforded by mounds or middens, pictographs, and the very considerable collection of aboriginal objects in public and private hands, all of which indicate a culture quite different from that of Porto Rico or St. Vincent. As the antiquities from St. Kitts and Nevis are practically identical, it is supposed that they belong to the same culture area which may likewise include some of the neighboring islands, which have been little investigated.

Middens

The middens on St. Kitts visited by the author are as follows: (1) West Farm or Two Mile Cut; (2) Stone Fort; (3) Wingfield Estate.[10]

In general character the St. Kitts middens do not differ from those of St. Vincent. They are ordinarily situated in cultivated fields and their presence can be detected only by fragments of pottery strewn over the surface of the soil, or, as at West Farm, where roads have been cut, laying bare a section of the mound. Specimens of marine shells invariably occur in the sites of these middens and deep below the surface as shown by cross sections, but not in sufficient quantities to lead us to designate them as shell heaps.

[7] Aboriginal Antiquities of St. Kitts and Nevis. Amer. Anthrop., n. s., vol. IX, no. 2, pp. 315–333.

[8] The majority of the objects of Dr. Branch's collection are now in the National Museum at Washington, to which institution he presented them when his article was published.

[9] In addition to his article above referred to, Dr. Branch has published in Nature, vol. LIII, p. 580, Apr. 23, 1896, the following: "Last year in St. Kitts, in a cliff fresh cut by a wash, a gentleman found what were apparently the contents of a Carib grave—fragments of pottery, two complete utensils, and pieces of human bones. * * * This is the first discovery, so far as I can ascertain, of either bones or pottery in the Leeward Islands. * * * Since then, however, I have found a kitchen midden, and procured plenty of small fragments, along with crab claws, broken shells, fishbones, etc."

[10] These three localities and others are mentioned by Dr. Branch in his paper previously quoted. There are also middens at Indian Camp, Cayon, and Brighton Estates that were not visited by the author.

Pictographs

There are several instructive pictographs of aboriginal make in the island of St. Kitts, one of the best preserved of which occurs on a bowlder in a field at the Wingfield estate. There are others on a bowlder on the West Farm estate at Harts Bay, and still others in the gorge at Bloody River, near Stone Fort. Many of these pictographs are simply scratched in the surface of the soft tufaceous rock, and are in some instances undoubtedly helped out by modern visitors. The pictograph reported from Millets Bay by Dr. Branch is on a slab of stone which has been removed by Mr. Connell and placed in his collection. This stone was once used by women as a washboard.

Altar Stone

Baird[11] thus describes a singular stone from St. Kitts: "Among the memorabilia of St. Kitts I find in my notebook honorable mention made of a somewhat singular stone which is to be seen almost on the very summit of a remarkable and singularly beautiful hill, called by the more appropriate than euphonious name of Monkey Hill, which hill may be said to form the southern termination of the range which traverses the island. Monkey Hill is in itself a verdant object, with green and consequently beautiful cane fields and brakes extending to its very base; and on the summit of it stands the large stone referred to, in form and shape something like a cradle and having part of the top hollowed out so as to give countenance to the legend that it was used by the fierce Caribs for the immolation and burning of their human sacrifices."

The Connell Collection

The best collection of archeological objects from St. Kitts belongs to Mr. Connell, engineer of the central sugar factory, who has assiduously collected antiquities from this island for many years. It is fortunate that the majority of objects found at St. Kitts drift into his hands and have augmented his collection, so that it has now become the largest in the island and one of the best in the West Indies, for he liberally exhibits it to all visitors and allows archeologists to study the objects it contains. His collection, like all others from the island of St. Kitts, is rich in grinding stones and as a rule poor in axes. There are very few winged headed axes like those so common in St. Vincent, and a few petaloids, but no three-pointed stones, elbow stones, or stone collars. One of the rare forms of implements is shown in plate 82, *A*, *B*. It is exceptional in having a rectangular

[11] Impressions of the West Indies, pp. 67–68.

projection on one edge. Another specimen (*C*, *D*) has projections on both edges, the latter resembling a stone object figured by Mason from Guadeloupe. Both are rare in West Indian collections.

The grinder (pl. 82, *E*) is from St. James Parish, Nevis, and belongs to one of the type forms of grinders from St. Kitts. Its form is better suited to a rubbing stone than to a pestle such as occurs in Santo Domingo.[11a]

In the Connell collection is a remarkable specimen of stone carving from the island, Nevis, similar in technique to a "pillar stone," now in the British Museum, described and figured by Joyce, but originally from Nevis. This remarkable specimen is a torso, of which two human legs and the lower part of the abdomen are carved in relief on the surface of a soft stone slab. The feet have been broken off at the ankles, and the remainder is more or less mutilated. The knees are extended, with several folds of skin indicating muscles on the inside of the legs, similar to the specimen in the British Museum. The sex is realistically indicated. The carving of the lower abdomen and limbs is of a high order of excellence. A remarkable characteristic of this specimen, a feature which it shares with the pillar stone described by Joyce, is a Medusa-like head, with curled hair cut in relief, between the extended knees. The eyes and nose of this head are represented, though considerably battered, and there is a kind of chaplet on the forehead. Grooves and rows of holes on the cheeks and chin suggest that feathers, or some other decoration, were inserted in these holes. The hair is curly, like that of an African rather than an Indian, and is represented in relief by scrolls on the crown and the ears. The collector of this specimen records that there was formerly another fragment of this carving which has disappeared, and may be that described by Joyce in the British Museum. The art of these two specimens is practically identical, and if they are pillar stones or examples of West Indian prehistoric art, as they seem to be, they present one of the best examples of Antillean stonework known to the author. The supposition that they were pillar stones seems logical, in which case they may have been set up and treated as idols. The treatment of the hair is not typically American, and it has been suggested that they may have been brought to this island from the Old World.

One of the remarkable and exceptional forms of stone objects in the Connell collection, figured by Dr. Branch and represented in plate 82, *K*, is an elongated oval ring, the perforation being in the

[11a] Joyce, Prehistoric antiquities from the Antilles, in the British Museum. Journ. Roy. Anthrop. Inst., vol. xxxvii, pl. LII, fig. 3, 1917.

form of a slit with beveled sides. One end of this is enlarged into a knob, but the surface is not decorated. While it is barely possible that this object is a St. Kitts representation of the Porto Rican stone collars and may have been used in similar rites, there is no likeness to them in the superficial decoration. This is the only specimen of its kind that the author has ever seen in the Lesser Antilles.

GRINDERS

The grinders from St. Kitts may be divided into the following types: (1) Conical with circular base and pointed apex, base curved or flat; (2) conical with oval base and pointed apex, base convex or flat; (3) frustum of cone with narrowing sides, top slightly enlarged; (4) base circular extending beyond handle, which is conical or rounded at apex; (5) base oval, handle narrower than diameter of base, rounded apex; (6) apex enlarged into knob, handle slender, base larger than apical knob; (7) apex curved to one side, base larger than handle; (8) spool-shaped, handle deeply cut; (9) flat, with handle decorated with parallel lines.

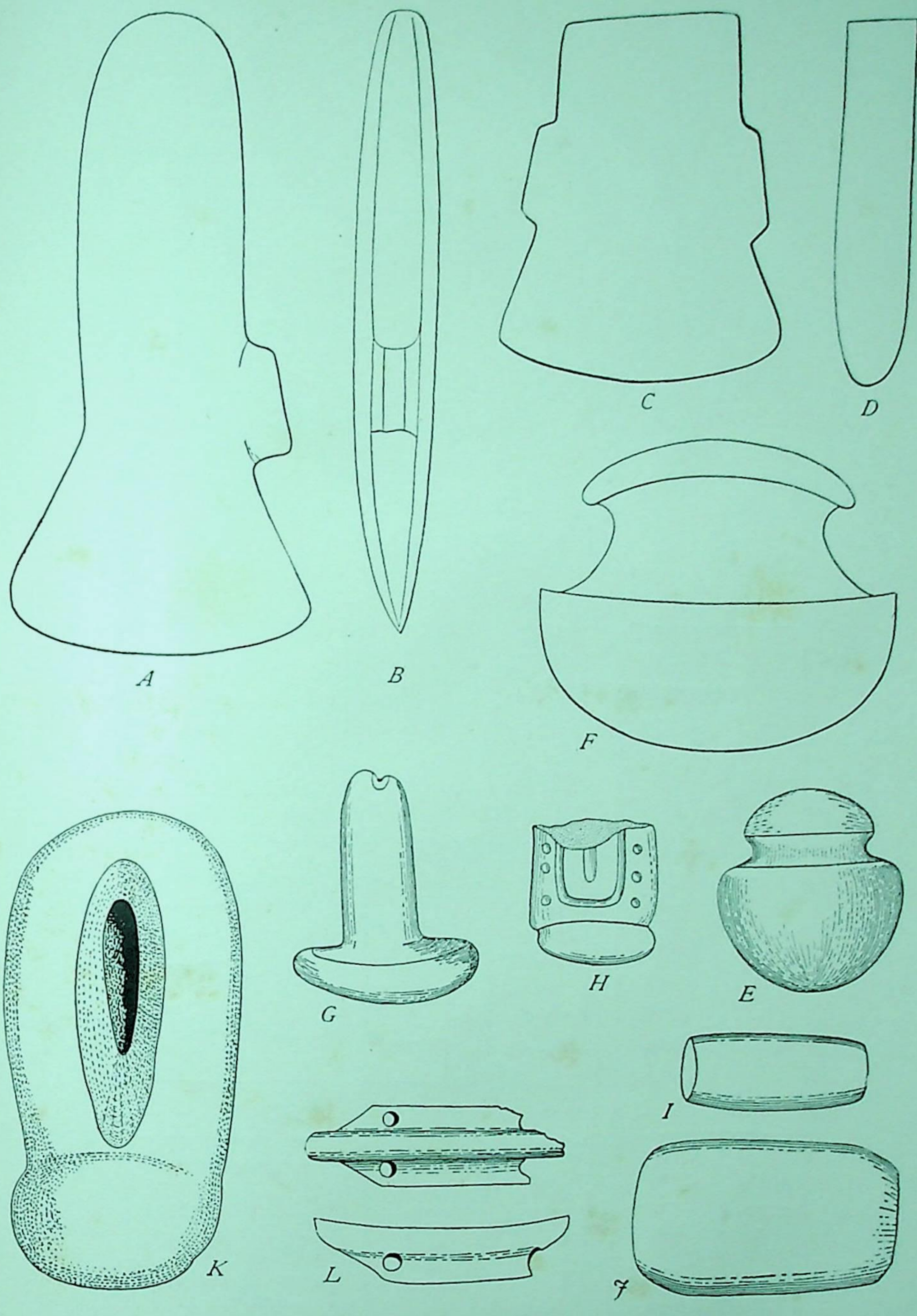
None of the many grinding stones in collections from St. Kitts have the pestle form with a human, bird, or animal head cut on the end of the handle, which is in marked contrast with the known specimens of pestles from Santo Domingo and Porto Rico.

Most of the above types of St. Kitts grinders also occur in the Guesde collection from Guadeloupe, and a few specimens are represented elsewhere, but nowhere is there a relatively greater number of grinders than in St. Kitts and Guadeloupe. One or two conical grinders resembling those of St. Kitts have been collected in Trinidad. Similar implements in the Guesde collection have been described by Prof. Mason as axes. There are several stone objects shaped like pencils, one of which is not much larger than one's little finger. These problematical stones taper uniformly to a point.

Two forms of grinding stones represented in plate 82, *F*, *G*, recall forms from Guadeloupe. The former is from Dayfords; the latter from the Hermitage.

SHELL OBJECTS

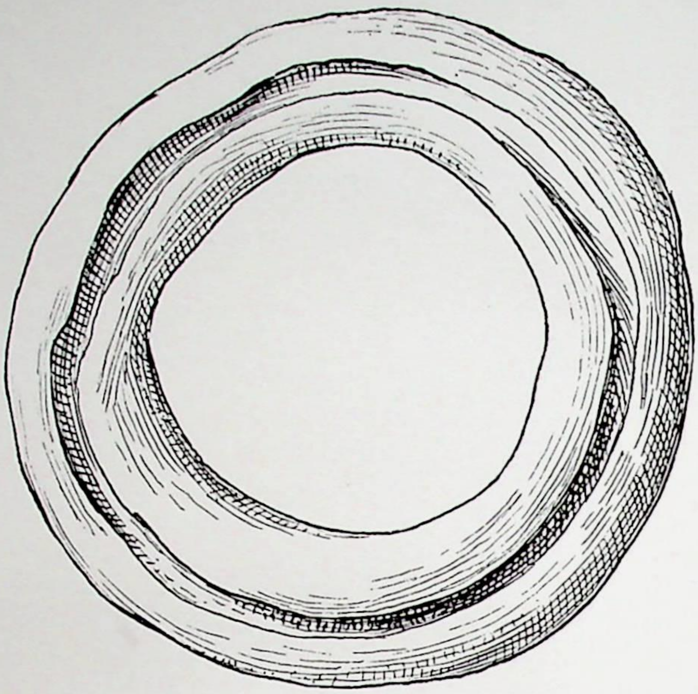
Implements and other objects of shell are abundant in the Connell collection. The lip of the shell, *Cassis tuberosus*, was often the material used for this purpose. Celts, axes, conoids, and raspers made of shell are common, but among these specimens the Barbados shoehorn-shaped shell implement is wanting. One type of shell implement has the end flat and beveled, and the corrugations of the



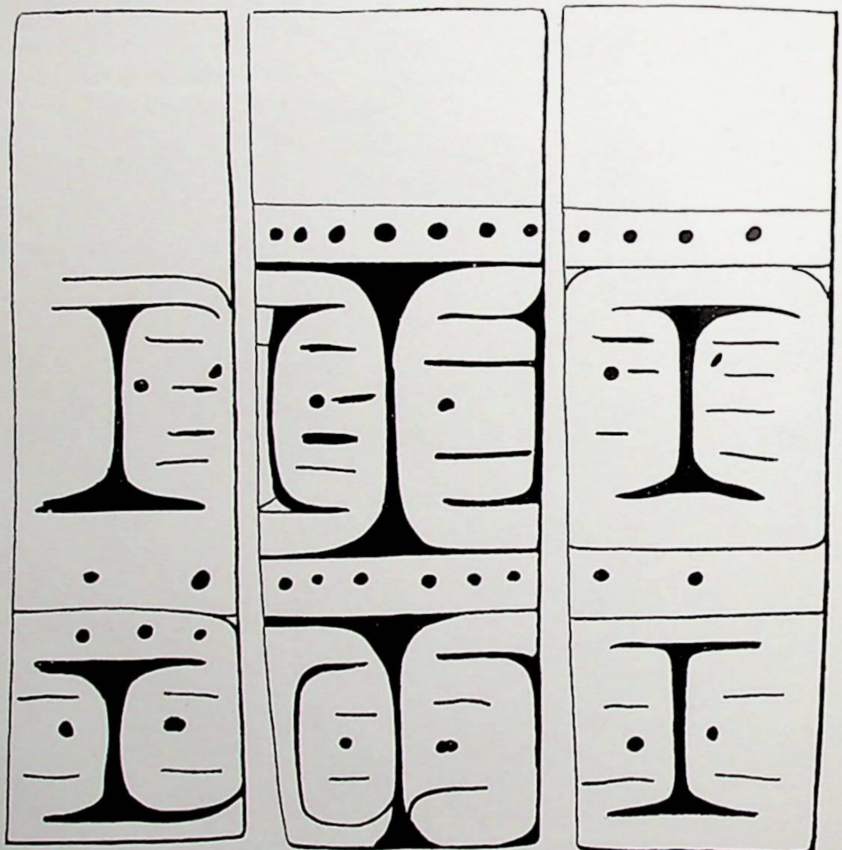
STONE AND SHELL IMPLEMENTS, ST. KITTS (CONNELL COLLECTION)

A, 7 inches; *B*, 7 inches; *C*, 4 inches; *D*, 4 inches; *F*, 4.19 inches; *H*, 1.56 inches; *I*, 2 inches; *J*, 3 inches; *K*, 5.5 inches; *L*, 2.94 inches.

A

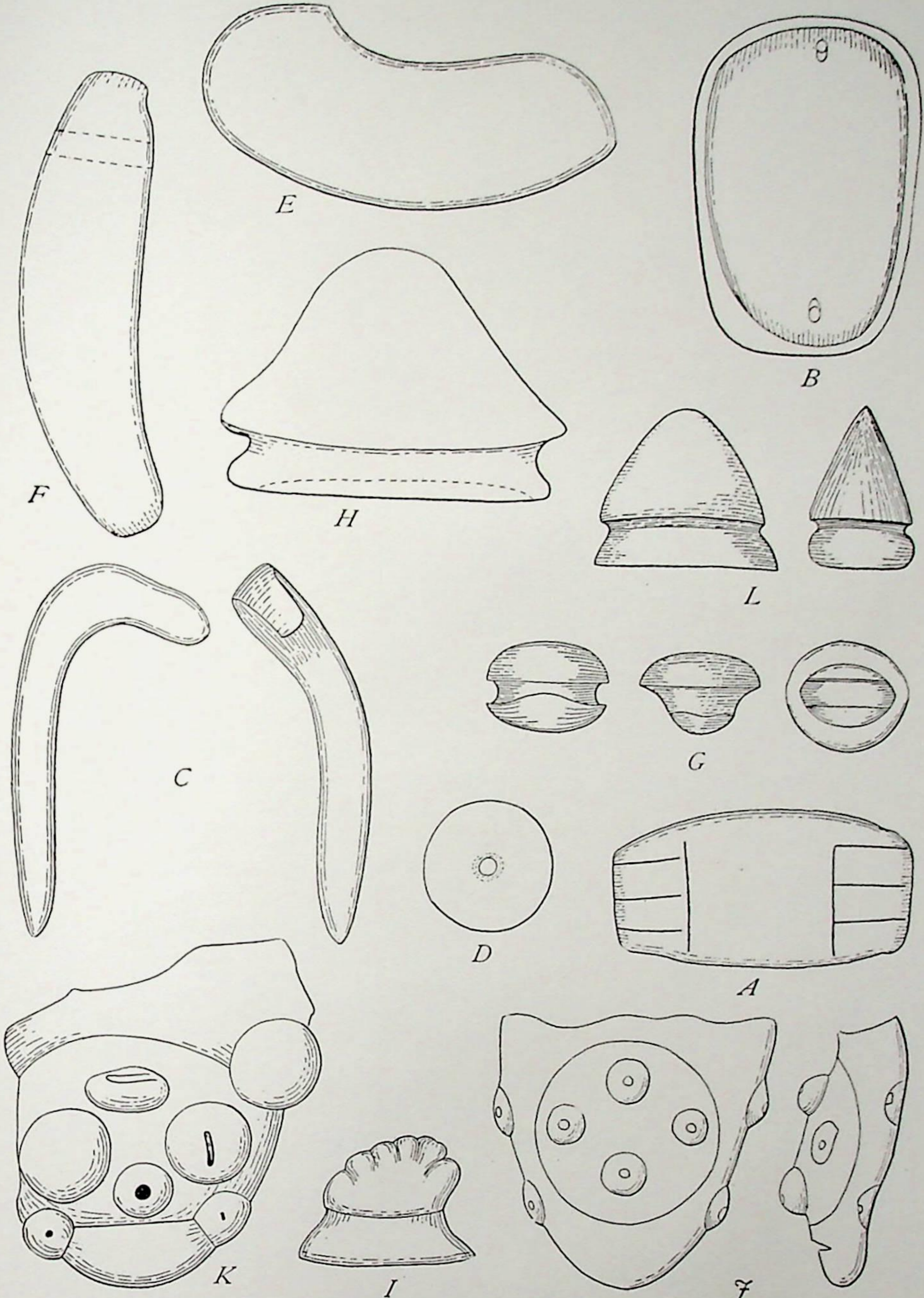


B



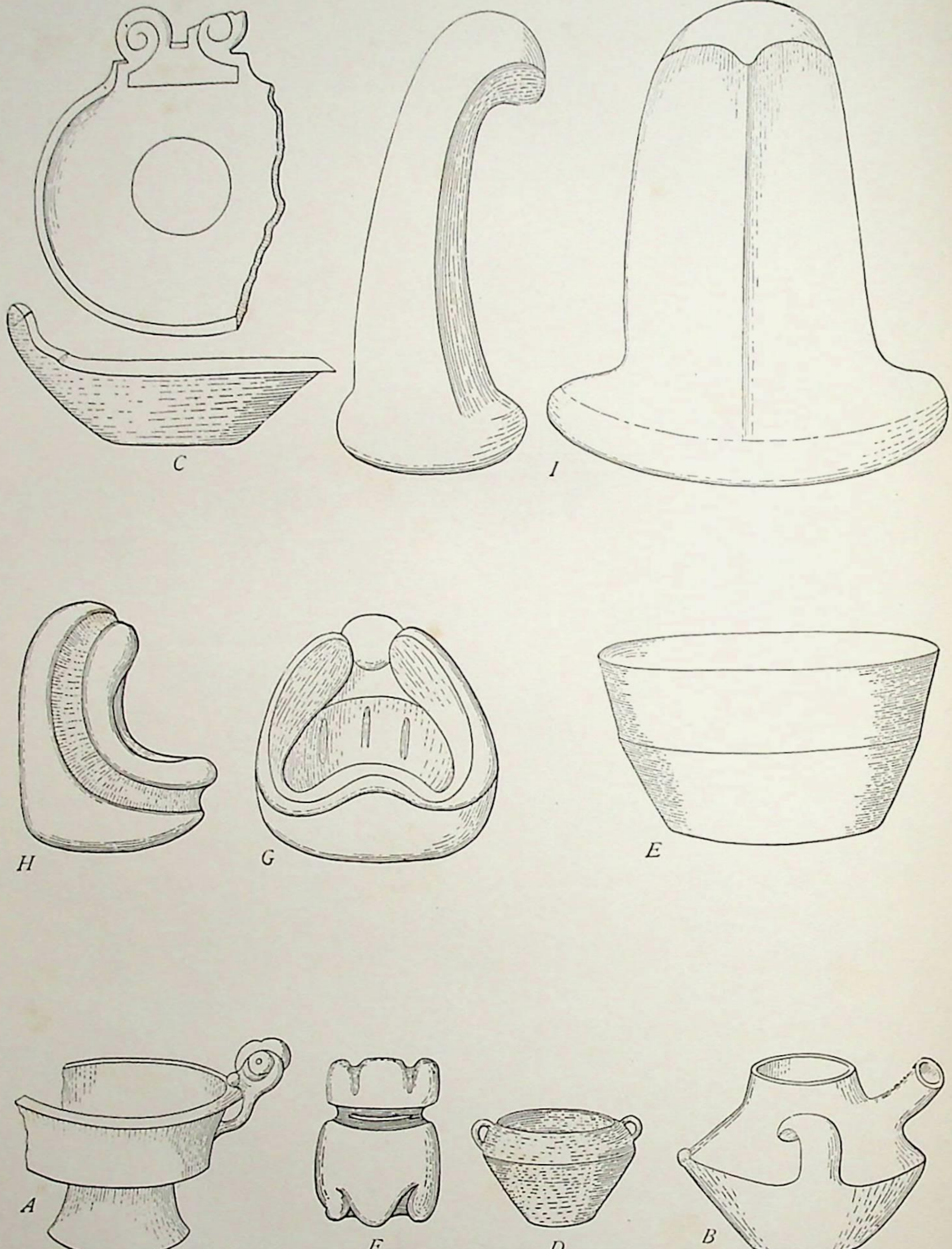
A, POTTERY RING; *B*, DECORATED SHELL CYLINDER, ST. KITTS (CONNELL COLLECTION)

B, 2 inches.



VARIOUS OBJECTS, ST. KITTS (CONNELL COLLECTION)

B, 2.5 inches; *C*, 3.44 inches; *D*, 3 inches; *I*, 1.13 inches; *J*, 2.25 inches; *K*, 2.19 inches; *L*, 1.5 inches.



POTTERY AND STONE OBJECTS, ST. KITTS

A, 1.75 inches; *B*, 2.06 inches; *C*, 8.06 inches; *F*, 2 inches; *G*, 3 inches; *H*, 3 inches; *I*, 5.25 inches.

lip along the side emphasized by deepening the grooves between them. Numerous implements have almost the same shape as petaloid or almond-shaped celts. The ordinary Scandinavian type with a blunt head is common.

Cylinders made of shell, clay (pl. 82, *I*, *J*), and stone are found in the Connell collection. A shell cylinder shown has its surface incised with dots and lines forming a design (pl. 83, *B*) of unknown meaning. The same design appears on cylinders of clay (pl. 82, *H*), a broken fragment of which is in the Connell collection.

Plate 83, *A*, represents a ring made of burnt clay.

The shell ornament (pl. 84, *A*) from Stone Fort is rectangular in shape and has three parallel marks connected with a transverse groove incised at each end. This unique form has been provisionally interpreted as an ornament, but its true meaning may later be shown to be a much different character.

The shell object (pl. 84, *B*) is provisionally called a spoon on account of the concavity on one side. It is convex on one side, concave on the opposite, and perforated at each end.

The shell object shown in plate 84, *C*, is of unknown use, but the indications are that it was used as an ornament. Other similar forms with additional perforations also occur in the Connell collection.

Ornaments of shell and stone of an elongated pendant form are numerous. Some of the varieties of these are shown in plate 84, *E*, *F*. Figure *D* has a circular form and is perforated. In one or two instances these have a groove cut around one end.

The object, plate 84, *G*, shown laterally and from above, calls to mind forms of labrets. It is ovate with medial groove, smooth, and of relatively small size.

The conical objects like the accompanying figures (pls. 77, *C*, *D*, 84, *H*, *I*, *L*) are of unknown meaning. These are specimens of stone and shell, one of the latter (*I*) having a pointed crest, which is serrated.[12]

POTTERY

The pottery of St. Kitts is among the finest in the Lesser Antilles and is commonly red or red and white, generally with incised decorations. The Connell collection contains several rare forms never before figured.

There is a marked resemblance between the St. Kitts pottery and that from the St. Vincent-Grenada area, but there is sufficient individuality to indicate that the St. Kitts pottery belongs to a subarea allied in some particulars to the ceramics of the Greater Antilles.

[12] A specimen of the same type made of stone is figured in the author's Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. XXIII, *l*.

Numerous heads made of earthenware, evidently the handles of bowls or jars, occur in the Connell collection. That figured here (pl. 84, *J*, *K*) recalls Grenada ware, the mouth being represented by an elevation, the eyes by a dot surrounded by a circle. There is an elevated knob on the forehead and a pair of similar knobs on each side of the face.

One of the most instructive specimens of St. Kitts pottery in the Connell collection is a broken jar of bright red ware with superficial, indistinct, white figures. This rare specimen (pl. 85, *A*) was found on the Brighton estate, Cayon, St. Kitts, and although partly broken is one of the most remarkable pieces of pottery from this island. The specimen evidently formerly had two handles opposite each other on the rim, one of which is now broken. The remaining handle, an animal head, is attached to the rim of the vessel, with mouth over the edge and large goggle eyes. From the head there extends a slim rounded handle attached midway in the curved side of the upper part of the bowl.

The bowl is mounted on a base flaring below and of somewhat less diameter above. The ware is thick. Possibly this was a mortuary vessel. This specimen is the best known to me from the island of St. Kitts.

The bowl figured in plate 85, *B*, found in an excavation in the road of the Cunningham estate, is practically of the same pattern as the "monkey vases" made by modern negroes of Nevis and sold in St. Kitts. It is of rough gray ware and has a snout with handles on each side. The base is flat, mouth somewhat constricted, snout protuberant, body of the vase enlarged at the equator and sloping to base and mouth.

A platter of thick red ware (pl. 85, *C*) with a prolongation of the rim on one side, decorated on the interior with a double scroll, is fragmentary, but enough remains to indicate the general form. The bottom is flat, without basal ring, and the lip is slightly recurved. This specimen was found at the botanical station on the island of Nevis.

The pot here shown (pl. 85, *D*) was dug out of a grave at the Mills estate, and is a fine example of an amphora, few of which occur in the known collections. The lower part tapers uniformly to a flat circular base from an angular middle ridge, which narrows to the orifice and forms the lip. The two slender handles are attached to this part of the vessel.

The comparatively large food bowl of reddish color shown in plate 85, *E*, has a wide flaring orifice slightly turned back. The base of this pot is circular, flat, and its sides slightly bulge midway

between base and orifice. This bowl was found upside down about 2 feet below the surface, covering a vertebra of a fish, 11 flint scrapers, and 3 small chisels.

STONE OBJECTS

There are two amulets in the Connell collection representing the frog, one of which, shown in plate 85, *F*, recalls the Prague specimen described on page 234. This specimen is made of a green stone-like jadeite and is perforated through the head. The raised ridge on the groove that separates the head from the neck is not seen in the cast of the Prague specimen and the eyes are wanting in the Connell object.

An examination of the different forms of amulets that have been figured shows no fetish in form of a frog, but as the technique is purely Antillean there appears to be no doubt that this specimen came from one of the West Indies. From its resemblance to specimens from Haiti, Santo Domingo, and Cuba the author supposes that it came from the Greater Antilles.

There is in the Public Library collection at St. Kitts a goblet-shaped mortar with two handles projecting, one from each side. This specimen is unique, but mortars in which the base is not differentiated from the body and in which the handles are absent are not rare.

A flat rectangular stone, with four short stumpy legs, and a depression as if due to grinding on the top, may have been used as a metate in grinding maize, yuca root, or cassava bread. This specimen also reminds one of seats (duhos) found in Porto Rico and some of the Greater Antilles, especially Jamaica.

An exceptional worked stone object (pl. 85, *G*, *H*) in the St. Kitts Public Museum collection has a spherical or ovate shape with a depression on one side, imparting to it the appearance of a small mortar; but on one side of the wall of this concavity there is a projection resembling a handle extending into the depression, which is hollowed on each side as here shown. This unique specimen recalls somewhat an artificially worked stone in the Connell collection.

Plate 86, *A*, represents a shell object of unknown use, unique in West Indian collections, and *B*, a shell disk which is perforated. *C* is the spire of a shell perforated and apparently used as a tinkler. *D* represents the lip of a conch shell with ridges artificially intensified. The object shown from above, from below, and in section in *E* is made of bone, but its use is not known. *F* shows two implements, possibly made of human bone.

Plate 87, *A*, is a pestle or grinder of unusual form and use, while *B* is a crescentic stone gorget perforated midway in its length. *C* and *D* are two views of a clay object with a resemblance to a human head. The remaining figures, *E*, *F*, *G*, *H*, are made of stone, but their use is unknown.

The few objects from Nevis in the Connell and other collections are exceptionally fine, and certain of them so closely resemble those found in St. Kitts that we may suppose the prehistoric people of this island and those of St. Kitts, only a few miles away, were identical in culture. The indications are that there was a considerable population on this island in prehistoric times.

ST. CROIX

A few pieces of pottery from St. Croix belong to the Porto Rican area, and a few stone collars and three-pointed stones characteristic of prehistoric Borinquen have been found on this island. The objects from this island are almost identical with those from the other Danish Islands, San Juan and St. Thomas. Separated by a wide, deep channel from the St. Kitts group and geologically different from other Danish Islands, St. Croix shows recent volcanic action. The rock formation of the two ends of St. Croix are geologically a bluish slate, the area between being of a calcareous formation.[13]

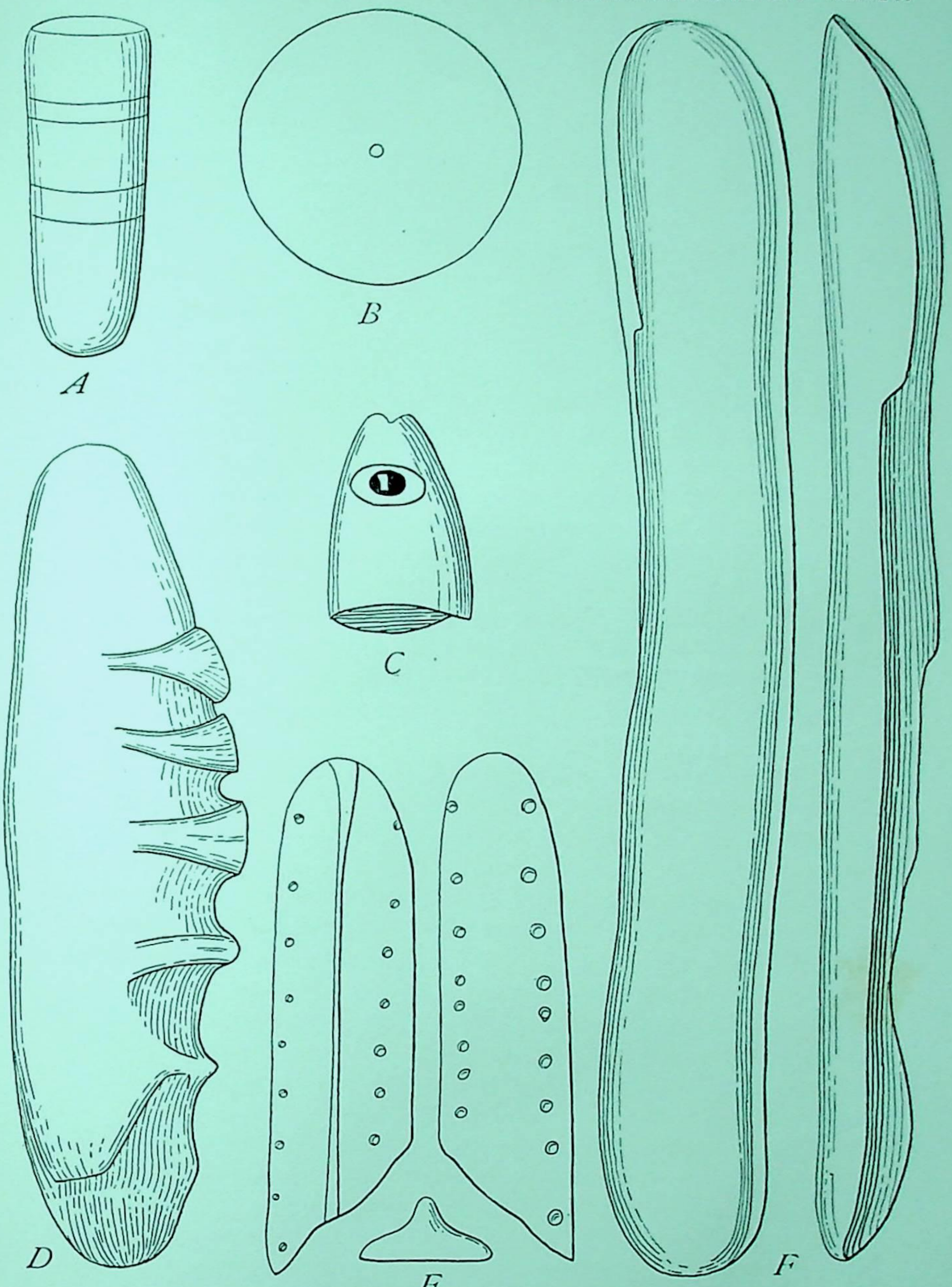
St. Croix is called Ay-Ay in several of the early accounts of the island and is considered Carib, but the stone implements found in its territory are so like those of Porto Rico and the typical forms so different from the St. Vincent and St. Kitts area that it is considered a member of the Borinquen group, and not as belonging to the Lesser Antilles, culturally speaking.

Several private collections made on this island were examined by the author, who himself gathered about 100 specimens of petaloid celts. In the collection of the governor of the Danish West Indies at St. Thomas there are a number of prehistoric objects from St. Croix. It appears that the prehistoric population of St. Croix was fairly large, judging from the number of known mounds and middens. Early historical accounts of the island would lead me to suspect that it was smaller than the archeological evidence indicates.

The inhabitants of St. Croix were valiant, as was evident to Columbus, who had an encounter on his second voyage with the aborigines, in which one of his crew was mortally wounded by a poisoned arrow.[14] The place where this encounter occurred was probably

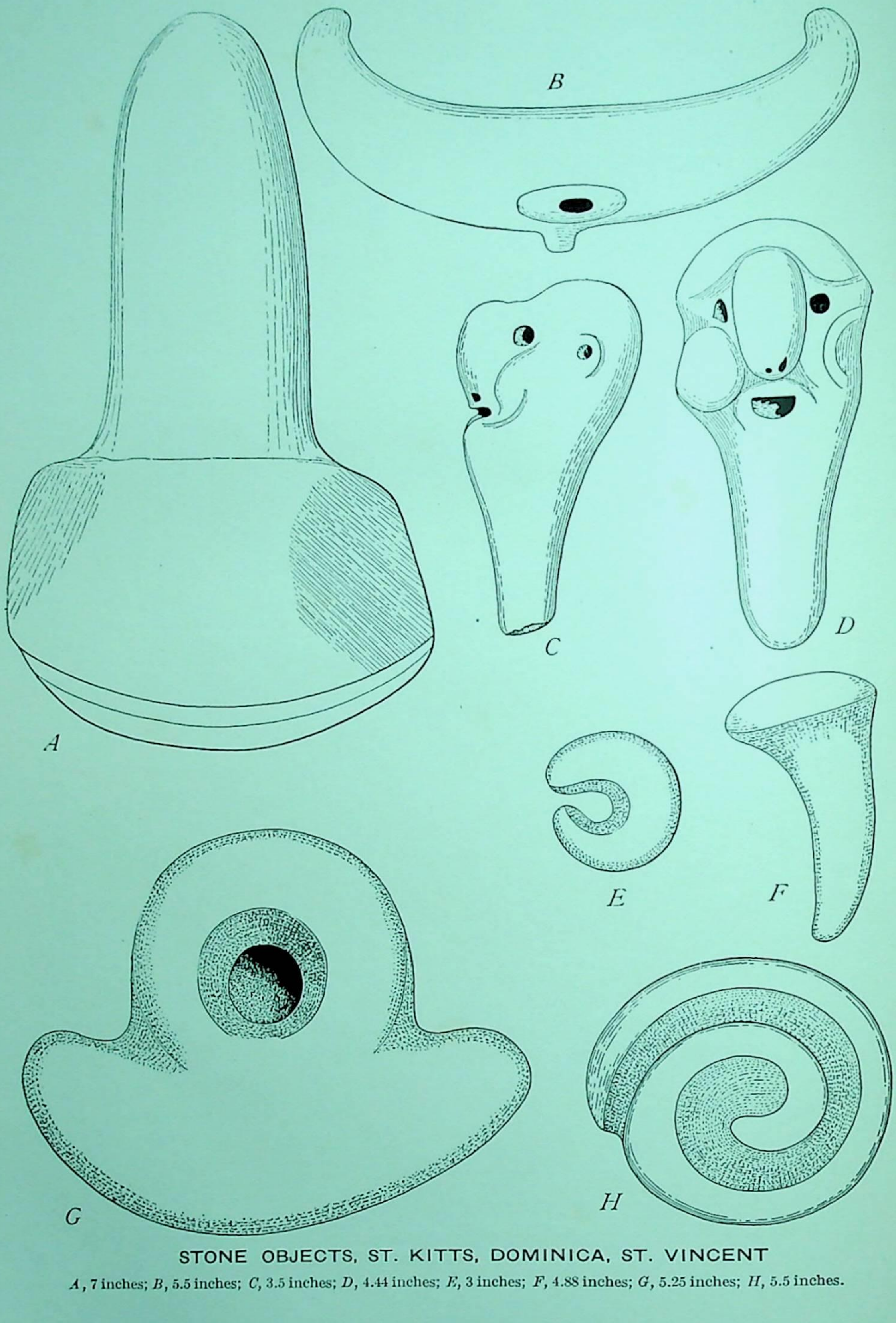
[13] For geology see Quin, The Building of an Island, New York, 1907.

[14] The arrows of the natives were apparently tipped with sharp sticks or teeth, not with stone points.



SHELL OBJECTS, ST. KITTS AND NEVIS (CONNELL COLLECTION)

A, 2.13 inches; *B*, 4 inches; *C*, 1.5 inches; *D*, 5 inches; *E*, 3.13 inches; *F*, 7.63 inches.



STONE OBJECTS, ST. KITTS, DOMINICA, ST. VINCENT

A, 7 inches; *B*, 5.5 inches; *C*, 3.5 inches; *D*, 4.44 inches; *E*, 3 inches; *F*, 4.88 inches; *G*, 5.25 inches; *H*, 5.5 inches.

near the Salt River settlement, about 7 miles from Christiansted. Here there was a landing place for canoes. The hostility of the natives led to the island being designated as a Carib island.

The Salt River settlement has in the past yielded many specimens of aboriginal artifacts. In recent times it has been examined by Dr. Christian Branch and Mr. A. Pinart, who obtained a small collection of pottery fragments and stone objects; a few specimens were also collected by the author from a low bluff eroded by the sea at this place. The largest collection from this site was made by the late Theodoor de Booy.[15]

The prevalence of petaloids and axes over grinding implements in the collections at St. Croix suggests warlike rather than peaceful pursuits; and as the island is climatically dry and not very fertile, it may be supposed that agriculture was not as common among the natives as in well-watered fertile islands like St. Kitts. Historical accounts often speak of the Carib of this island, who made raids from it on Porto Rico and other islands of the Greater Antilles.

Although St. Croix is distinctly called a Carib island, of the 1,000 specimens from that island examined by the author, not one of the wing-shaped axes of St. Vincent was found, from which fact it is supposed, on archeological grounds, that the culture of the people who originally inhabited St. Croix was different from those of St. Vincent.

Salt River Midden

The Salt River midden, the most important known prehistoric village site in St. Croix, is situated on a slightly elevated point of land on the right hand entering the river, and covers a considerable extent of the shore at that point; but as the whole mound is now covered with bushes which cover the surface much of its extent is concealed. The sea has made deep inroads on the edge of the bank, baring layers of shells and débris which are nowhere more than 3 feet thick. The author has been informed that a number of objects of stone, pottery, and other artifacts have been gathered along the beach, and that Dr. Christian Branch discovered human skulls in the lower layer, but on my visit a few fragments of coarse pottery, broken shells, with a few shell chisels, were all that was obtained.[16]

There are one or two other shell mounds along the coast, one of which is an obscure midden near the landing at Christiansted, but it is much concealed by modern débris and rank vegetation, and quite

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[15] *Vide* Booy, Archeology of the Virgin Islands, Indian Notes and Monographs, vol. 1, No. 1, 1919.

[16] This midden was partly excavated by Dr. Branch, and earlier by M. A. Pinart. Others have dug in it for supposed buried treasure.

limited in size. The majority of objects now in collections from St. Croix were picked up on the surface, having been brought to light in the process of cultivation of the cane fields; but they are said to be most abundant on land bordering Salt River.

Artifacts

The collections, like that obtained by the author, are largely made up of petaloid celts, which vary from almond to spear shaped forms. One or two show shallow encircling grooves or notches on the sides for hafting and others are like edged tools of triangular form. The form of one stone implement is oblong, flat on one side and rounded on the other, with both ends sharpened to cutting edges. A large number of implements showing recent breakage were also collected. There is a general uniformity in the shape of St. Croix implements, the majority being like those of Porto Rico. No grinding tools appear in the collections made by the author, but a mortar and pestle were seen in a private home.

Among so many specimens of almond and leaf shaped implements which constitute the majority of objects in collections from St. Croix, it was a genuine surprise to find a stone implement which showed undoubted influence of Porto Rico. This was a fragment of a stone collar, or, to be more accurate, a fragment of the decorated panel, which had evidently been put to secondary use as a pestle. The surface was decorated with chevron lines, recalling the ornamentation of certain collars from Porto Rico.

The Carib at the beginning of the historic epoch had submerged the Tainan culture of the Virgin Islands and introduced many objects peculiar to them, but the earlier culture of St. Croix was essentially like that of Porto Rico.

It is certainly significant that while the majority of stone implements from St. Kitts showed marks of having been used for grinders, out of about 500 specimens examined by the author from St. Croix there was not found a single grinding pestle, and but one small mortar, too minute to be used for anything but pigment. Although situated about 100 miles from Porto Rico, no three-pointed stones or collars have yet been found in St. Croix. The collection owned by the governor of the Danish West Indies contains, in addition to many petaloids of almond shape, one or two other forms, as a paddle-like stone that recalls one figured by the author [17] and a long needle stone pointed at both ends. Both of these are like the Porto Rican types.

PORTO RICO AREA

The Porto Rico area is separated from the Lesser Antilles by the Anegada Passage. The prehistoric culture which extends from this

[17] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. XXIII, *f*.

passage to Cuba, called Tainan, is agricultural. Geographically it includes not only the large islands, Porto Rico, Santo Domingo, Haiti, and eastern Cuba, but also the Danish Islands,[18] St. Thomas, Santa Cruz, St. John, and a few small islands along the coasts of those above mentioned. The general features of this cultural area—the highest developed in the West Indies—have been outlined by the author in his "Aborigines of Porto Rico and neighboring Islands."[18a] It is essentially unlike any of the subgroups of the Lesser Antilles and has marked differences from Jamaica and the Bahamas.

Here developed in prehistoric times the highest culture of the Indian race in the West Indies, and, although Arawak, it was related to that of the Carib, who had made settlements at certain points on the coast, but had not been able to submerge the preexisting Arawak or overlay the existing culture with their own.

The Porto Rican cultural center is distinguished by the presence of three-pointed idols made of stone, stone collars of unique form, elbow stones, and wooden and stone seats or duhos. The pottery is among the finest in the West Indies. Effigy forms with raised heads for handles, incised rectangular lines, with enlargements at their extremities, and encircling lines not joined predominate. In Santo Domingo the vessels are generally flask-shaped, often decorated with human figures in relief.

The majority of the stone implements have a petaloid form, pointed at one end and flattened at the opposite, not grooved, but sometimes with a face engraved on one side.

The prehistoric inhabitants of the Porto Rican area had cultural relations with Central America, but not close enough to indicate either an identity or intimate relationship. The decoration of stone collars recalls that of the stone yokes of the Totonacs, but the differences are so great that, although these resemblances have been repeatedly pointed out, the variations in details are important. There are also anomalies in the distribution of the stone collars which are difficult to explain on the supposition that they are related to stone yokes. Cuba, especially the western extremity which approaches very near Yucatan, has yielded no stone collars, and they are likewise absent in Jamaica, which lies between the mainland and Haiti. No stone collars have been found in the Totonac region and no stone yokes in Porto Rico.[19]

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[18] Mr. De Booy, who has lately made a considerable collection of prehistoric objects from shell heaps in the Virgin Islands, questions the close relations here suggested, and may have good grounds for his doubts. The objects belonging to the historic epoch are more like Carib; those of the prehistoric more Tainan or Arawak, like those from Porto Rico.

[18a] Twenty-fifth Ann. Rept. Bur. Amer. Ethn.

[19] A stone ring in the Dehesa collection from Vera Cruz is unlike in all but form a Porto Rican stone collar.

Caves, Shell Heaps, and Ball Courts

Archeological objects have been found in many localities in Porto Rico, but they are especially abundant in the caves with which the island is honeycombed, in shell heaps, and inclosures of rectangular shape called batey, cercados de los Indios, or juegos de bola. All these sites are numerous and have been repeatedly referred to by previous writers.

The surface characteristics of these places are indicated in Aborigines of Porto Rico,[19a] where those of this island were first described in English, although known for many previous years through the descriptions of Dr. A. Stahl.[20] The vicinity of the ball courts to dwellings is mentioned by Oviedo and several other authors.

In his pioneer reconnoissance of Porto Rico in 1902–4 the author had not the time or means to engage in prolonged intensive work of excavation of caves, shell heaps, and ball courts (juegos de bola).[20a] There is much work to be done in this direction and a fair beginning has already been made. The opportunities are very great. Sites of prehistoric settlements are many, and those of historic character can easily be identified. As in all the West Indies, the archeologist has barely begun his work, and much remains to be done before the story of the culture of the Tainan race can be adequately made out. One of the most promising islands awaiting the spade of the archeologist is Haiti, and it is to be hoped that ere many years the antiquities of this island may be explored.

At the time of my visit a few desultory excavations had been made by local students in caves and shell heaps, but it remained for an expedition from the New York Academy of Sciences, under the direction of Prof. Boas, to pay especial attention to the subject. The results of extended excavations have not been fully published, although notices of the work have appeared in some of our journals.

There have been several collectors of archeological material in Porto Rico since my Aborigines of Porto Rico was written, among whom should be mentioned Mr. and Mrs. Lathrop, who have added several unique specimens obtained by excavations in shell heaps and by purchase to the Peabody Museum at Cambridge.

Although some light has been thrown on the so-called ball courts from an archeological point of view by the excavations of J. A. Mason and Haeberlin, they have added no new interpretation to the discussion by Oviedo and Stahl or to that in the author's Aborigines

[19a] Twenty-fifth Ann. Rept. Bur. Amer. Ethn.

[20] Los Indios Borinquenos. Puerto Rico, 1889.

[20a] In Oviedo these sites are called batey, but country people in Porto Rico speak of them as juegos de bola (game of ball). The old name is still applied to open places before large buildings.

of Porto Rico. The excavations have revealed the form and size of these inclosures and uncovered posts indicating buildings mentioned by Oviedo.

The caves and shell heaps have likewise been investigated, but up to this time, with the exception of articles by Messrs. Aitken,[21] Mason,[22] and Dr. Haeberlin,[23] the results are not known to the author. Several unique objects have been excavated; others have been purchased from native collectors.

The most important result of this work in caves was the discovery of bones of extinct animals, and others belonging to modern periods, as similar bones occur also in shell heaps. The aborigines of the West Indies probably used many animals for food, thereby hastening their extinction.

In both Porto Rico and Espanola we find evidences of a cave people and settlements of Carib—a vigorous nomadic stock—but the caves had practically become burial places, or ceremonial in their use. Evidences of the use of caves for these purposes occur all over Porto Rico, and, although they have not been thoroughly investigated, enough material has been taken from them to show that the cave inhabitants had many points in common.

There is considerable similarity in the artifacts from Porto Rico and Santo Domingo, and many differences between them and those from the Lesser Antilles, so that as a culture area the Greater Antilles are well differentiated from the Lesser.

Archeological Specimens

The specimens in the Heye collection from Porto Rico add much to our knowledge of the prehistoric period in Borinquen life, notwithstanding there are many duplicates of those already elsewhere described.

The Heye collection contains several new forms of zemis, stone implements, pottery, wooden objects, and those made of bone and shell. The stone implements are naturally the most numerous and will be first considered.

The type form of celt from Porto Rico is the petaloid, which, wherever found, has the same form and finely polished surface, as contrasted with the rough surface of the ax (fig. 28) or paddle-like stones of the Lesser Antilles.[24]

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[21] Porto Rican Burial Caves. Proc. 19th Int. Cong. Amer., pp. 224–228, 1917.

[22] Excavation of a new archeological site in Porto Rico. Proc. 19th Int. Cong. Amer., pp. 220–223, 1917.

[23] Archeological work in Porto Rico. Am. Anthrop., n. s., vol. XIX, pp. 214–238, 1917.

[24] For a discussion of distribution of the petaloid and ax form of implement see Fewkes, Aboriginal Culture in the Lesser Antilles, Bull. Amer. Geog. Soc., vol. XLVI, no. 9, 1914.

The pottery found by the author in Cueva de los Golondrinos, near Manati, fragments of which are figured in Aborigines of Porto Rico, is coarse, not unlike that from the Lesser Antilles, and very much more like that from Barbados. As was pointed out, there are likenesses to pottery found in shell heaps of Porto Rico and in other places of the island. It was not possible to distinguish this pottery from sea caves from that found in open juegos de bola, as no extended collections had been made from the ball courts, and so far as could be judged this difficulty still confronts us. The pottery from the shell heaps is now better known than it was a dozen years ago, and it would appear that the ceramics from shell deposits is quite unlike that from some of the caves, as, for instance, the Cueva de los Golondrinos on the north shore. It is, however, difficult to make this statement comprehensive, as it appears that caves were used for burial purposes, especially in the uplands, by a people more recent than those, if any, who lived in caves.

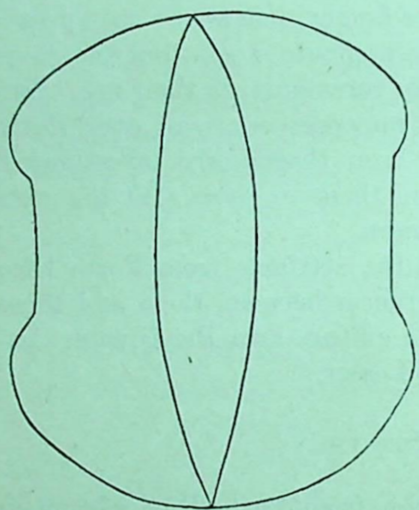


FIG. 28.—Outline of ax, shown from edge and side. (3.5 inches.)

"The present inhabitants of Hispaniola still find the figures of Zemes in several parts of the island, and it is by this sign they know where Indian towns formerly stood, as well as by certain heaps of shells found under ground; the Indians having been very fond of shellfish; and as often as this happens, very curious discoveries are to be made, by continuing to dig a little, in the neighbourhood of such heaps; for here are generally to be found everything this people used; such as earthen vessels, flat earthen plates for baking cassava bread, hatchets, and those little plates of gold they used to hang to their nostrils, and sometimes to their ears; but above all, a considerable quantity of Zemes of every form."[25]

PETALOID CELTS

The majority of the stone axes from the Porto Rican area belong to a type which, from its resemblance to the petal of a flower, has received the name petaloid. A much closer resemblance in form, however, is that to an almond nut, from which fact these implements

[25] Jefferys, Natural and Civil History of the French Dominions in North and South America, pt. 2, p. 15.

are often called almond celts. The petaloid form occurs in great abundance in Porto Rico, but it is found in all the islands from Trinidad to the Bahamas.

The size of the petaloid celt varies, some of the specimens being too small for use as implements, while others are very large. The latter may be ceremonial objects; the former mascots or charm stones.

The mode of uniting the petaloid to its handle is indicated by the several specimens described by Joyce, Mason, and the author. In these specimens the handle and blade are both made of one stone, which has suggested the name monolithic petaloid celt.

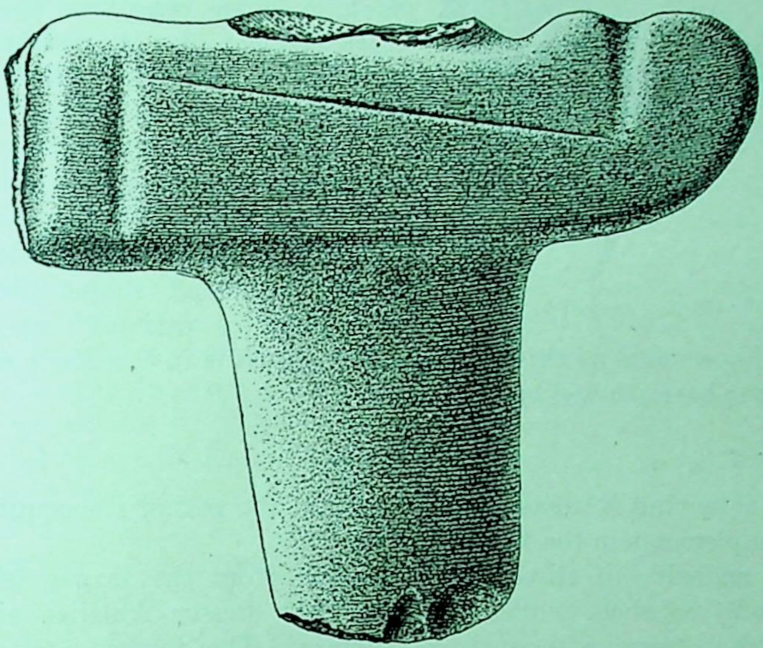


FIG. 29.—Broken monolithic celt. (6 inches.)

MONOLITHIC PETALOID CELTS

There are two monolithic celts (figs. 29, 30) in the Heye collection, from both of which fragments have been broken. There are, however, a few undescribed specimens of this form in other museums.

The specimens of monolithic celts from the mounds of the United States, as those discovered by Mr. C. B. Moore at Moundville and in Jones' Antiquities of the Southern Indians, are particularly interesting on account of their variety and Antillean affinities. Those from Central America are also instructive, but as yet no one has compared them to those from the West Indian region.

One of the most common differences between petaloids is the variation in the relation between length and breadth or thickness. Plate 88, *A*, shows one of the most unusual modifications in the otherwise regular form of these petaloids. The point in this speci-

men is less acute than is ordinarily the case and the sides enlarge as they recede from it, forming a cap, which appears to fit over the point of the celt as indicated. A cross section of the length of this modification of this form of petaloid is evident in the accompanying illustration.

The most important differences in the petaloids are not so much in shape as in the form and nature of the heads, bodies, or faces engraved upon them. A special group has been made to contain petaloids with engraved surfaces, called ceremonial celts, several undescribed specimens of which have been studied by the author. Another kind of petaloid celt, also elevated to a special group called monolithic petaloids, has a handle and ax in one piece. The celt preserves its almond shape, but the handle may be variously modified. Several specimens of this group, one of which is in the Heye collection, have been studied by the author.

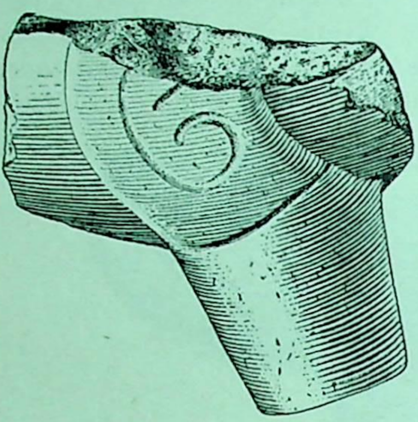


FIG. 30.—Broken monolithic celt.

ENGRAVED CELTS

The following is quoted at length from the author's account[26] of these implements in the Heye Museum.

The majority of stone objects known from the larger islands are finely polished, while those from the Lesser Antilles are of a different form, with a rough surface. The former are called celts; the latter are commonly known as axes. The peculiarities of these objects found in the West Indies indicate that these islands formed a sharply defined culture area in prehistoric times. Their technique suggests an occupation by man for a considerable period, for it takes many years to develop the culture that they express. We find, moreover, that the geographical distribution of the two different types of these objects can best be explained on the supposition that they belong to two radically different culture regions which can be readily distinguished. These two subcultural centers, geographically speaking, are the Greater and the Lesser Antilles—the former characterized by the smoothly polished celt; the latter by the rough ax, having an enlarged, well-developed poll, differentiated from the blade by encircling grooves

[26] Engraved Celts from the Antilles. Contributions from the Heye Museum, vol. II, no. 3, 1915.

or marginal notches for the hafting of handles. While the celt has no indication of a head, and the extremity of the blade tapers into a point, the head of the majority of axes from the Lesser Antilles is often broader or larger than the blade, and is variously modified into projections, horns, or bifurcations, very rarely taking the form of an animal's head.

The type form of celt from the Greater Antilles has an almond or petal shape, which has suggested the name "petaloid." Although the petaloid celt occurs in greater or less abundance[27] in all the West Indies, this form is particularly characteristic of the Greater Antilles. Implements of this type are generally made of stone, but when proper stone does not occur another material, as shell, may also be used for the purpose.

No implement of the polished stone epoch in America can surpass the petaloid in the regularity of its form or the beauty of its superficial finish. There is considerable variation in their size, but only a slight modification in their outlines, as seen in profile, the general almond or petaloid form being constant.

A cross section of one of these implements, taken midway in length, is as a rule oval; but a few are rectangular, the angles being rounded. The greatest breadth of a typical petaloid is near the middle. These celts have blunt edges and taper to a point, being destitute of grooves.[28]

The petaloid type passes almost imperceptibly into the ax form, or those with one end modified into a head and without the pointed extremity.

The petaloid celt figures extensively in the folklore of the modern islanders. In Porto Rico and other Spanish West Indies they are usually called "piedras del rayo," or thunder-stones, by which name they are commonly designated in the English islands. They are supposed by the country people to be endowed with magic powers, and are regarded as efficacious in healing diseases. They are likewise supposed to protect the natives from lightning, being frequently deposited for that purpose under the thatch forming the roof of their cabins. In St. Vincent and some islands they are placed in earthen jars to keep the drinking water pure and cool.[29]

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[27] The petaloid type occurs as far south as Trinidad, its northern extension being the Bahamas. About 90 per cent of all stone implements from the Greater Antilles are petaloid celts, and an equal percentage from the Lesser Antilles are axes.

[28] It is sometimes stated that grooved axes do not occur in the West Indies, but in the Heye collection we find them well represented from St. Vincent and other Lesser Antilles. The author has seen very few of this type from the Greater Antilles.

[29] There exists considerable folklore and many superstitions connected with these stones. It is sometimes stated that they are found in trees struck by lightning, while others declare they penetrate the earth and come to the surface in seven years. A true thunder-stone may, according to some informants, be determined by binding a thread about it and applying a lighted match. If the thread burns the stone is genuine. Several specimens bear superficial marks of having been tested this way.

They are conspicuous in the equipment of the African voodoo or obia men, who are said to employ them in some of their rites.

The writer has excavated several of these implements in Porto Rico caves, shell heaps, or middens, but the majority, counting into hundreds, were purchased from the country people, who, finding them in the soil while cultivating their "canucos," or small farms, preserve them as curiosities for purposes above mentioned. Those purchased by the author were, as a rule, slightly nicked by the finders, their points or edges being broken under the impression that they contain "electricity."

Specimens of Antillean petaloid celts with figures or faces cut upon their surfaces are rare. These probably were carried by the pointed extremity.[30] The most highly ornamented bear a morphological likeness to idols, and their forms imply more than the term "decorated celt" would indicate, for some of these are practically figurines rather than celts. The step, however, from the incised celt to the idol is here, as elsewhere with man in lower stages, so slight that nothing can be gained by ascribing one use or name to the engraved petaloid and the other to the petaloid in the form of a figure.[31]

The form and symbolism of the petaloids with life figures engraved upon them have led the author to the belief that these celts were never furnished with handles, but were used symbolically as insignia of rank, and carried directly in the hand by the pointed ends or inserted in staves or wooden sticks for the same purpose.

Engraved celts have been collected in the Bahámas and the Greater Antilles, but have never been found in the Lesser Antilles. The following list of specimens, named from the museums in which they now are, contains the more important variations in this type of celt:

1. Berlin Museum, No. 1.
2. Rae specimen.
3. Berlin Museum, No. 2.
4. British Museum (4 specimens).
5. United States National Museum.
6. Heye Museum.
7. Museum of the University of Havana.
8. Copenhagen Museum.
9. Heye Museum (stone "dirk").
10. Blackmore Museum (stone "dirk").

[30] The term decorated celt or celts with incised decorations might suffice to designate the simpler forms, but this name is inadequate to apply to the highly developed specimens.

[31] The monolithic stone celts, or those in which blade and handle are formed of one stone, are supposed to have been ceremonial in nature or to have been used in religious practices. Incidentally they indicate the way a wooden handle was attached to a smooth undecorated celt, and may throw some light on the probable way the celt with a figure engraved on one side was used.

An examination and comparison of the above specimens show that while they have considerable variation in form there is a sufficiently well marked resemblance to refer all to the same type. In its simplest form the incised petaloid celt can hardly be distinguished from an undecorated petaloid, the main difference being the human face cut upon its surface.

1. *Berlin Museum*, No. 1.[32]—This specimen (pl. 88, *B*) is one of the simple forms of the type of ceremonial petaloid celts. Its thickness is slight, compared with the breadth, the lateral as well as the terminal edges being sharp. Its main character is the incised circle on one side, inclosing other circles indicating eyes and mouth. Below this face, the arms with elbows upward are also indistinctly represented by grooves.

The specimen came to the Berlin Museum from Dr. Grosser, German consul at Plaisance, Haiti. It measures 13½ inches long by 3½ inches broad and 2 inches thick.

2. *Rae specimen*.—Mr. Theodoor de Booy has called my attention to a similar, almost identical, specimen which was found on a farm in New Providence, Bahamas, and is now owned by Mr. C. S. Rae, of Nassau. Mr. De Booy believes that there is a mention of this specimen in some work on the Bahamas, but says he has never seen it figured. To supply this want he has sent me drawings from the specimen itself with the size indicated. Its greatest length is 10½ inches; width, 3½ inches; thickness, 1¾ inches. The face of this celt is 2 by 1¾ inches. The circle represents a face, and is confined to one side, the opposite surface being smooth. It seems probable that this specimen was brought to the Bahamas from the neighboring islands, and its close similarity to the one from Haiti above mentioned shows a great probability that it was derived from that island.

3. *Berlin Museum*, No. 2.—An incised celt (pl. 88, *C*) in the same museum, said to have come from the island of St. Thomas, is one of the most beautiful forms of ceremonial petaloid celts known to the author. Its technique recalls stone objects from Santo Domingo, Porto Rico, and Haiti.[33] The outward form of this petaloid seen in profile is well preserved, the figure engraved upon it being well cut and unmistakably human. It measures 8 inches in length by 3 inches in width.

One of the illustrations shows this specimen from the face; the other from the back.[34] The details of both surfaces are so well

[32] It is with great pleasure that the author here acknowledges his thanks to the authorities of the Berlin Museum für Völkerkunde for permission to publish figures of these petaloids.

[33] Probably it came originally from one of these islands, the locality St. Thomas being wrongly ascribed to it.

[34] These figures and the preceding were made by W. von den Steinen, of the Berlin Museum.

worked out in the illustration that there is no need of an elaborate description. The style of the figure is thoroughly Antillean throughout, and comparable with that so constantly found in engraved figures of human beings from these islands, especially those cut in low relief on stone, shell, or bone. This specimen may be regarded as an intermediate form between a smooth celt with a face incised on the surface and that from the Royal Museum in Copenhagen, to be considered later, where the celt form has almost completely disappeared.

4. *British Museum* (four specimens).—Four specimens[34a] in the British Museum preserve a petaloid form, but are not so symmetrical nor so well made as some others. They are, however, especially instructive, since they show an elongation of the pointed end in the form of a handle, while the cutting edge still survives above the head. The position of these celts in a hypothetical series illustrating the modifications in the type would be nearer the simplest than the most complicated forms. This shows connections with another series, for from them one can readily pass into a group of globular stone objects or heads, with handles—a form without indications of a cutting edge and showing no affinity with celts.

5. *National Museum.*—The type specimen of engraved or ceremonial celts, first published in the author's work on the Aborigines of Porto Rico,[35] was one of the most instructive specimens of Archbishop Meriño's collection and was collected in Santo Domingo. The general characteristics, as shown in the figure referred to, are a sharpened edge extending over an oval head, with a pointed poll below, imparting to it the true petaloid form. The hands with their fingers drawn up under the chin and the low projection rising between them are feeble attempts to represent either the body or its appendages. On its reverse side the surface of the implement is plain, slightly curved, as is true of all celts on which face or head is represented. There can hardly be any good reason to believe that this celt ever had a handle, as no signs of such an attachment are to be seen, and even if there were the presence of a handle would conceal a part of the figure it bears. The specimen is of a greenish stone and measures 14 inches in length.

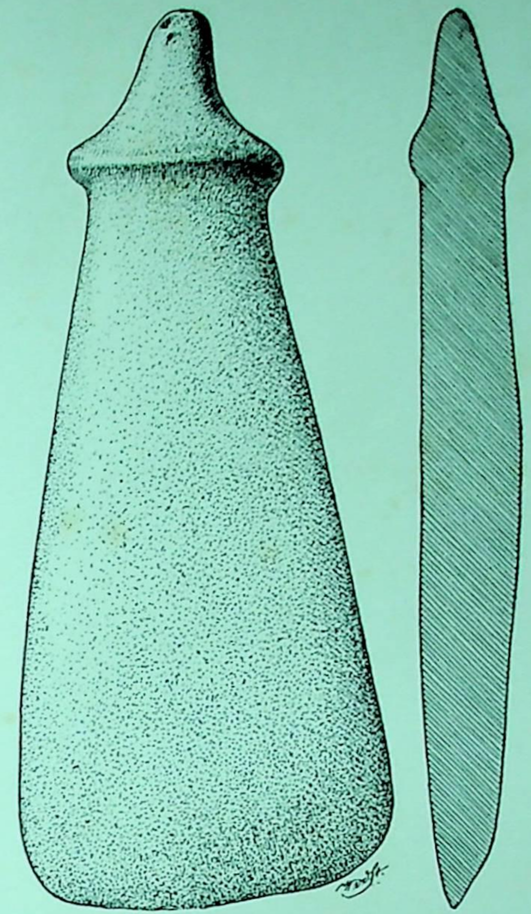
6. *Heye Museum.*—Mr. Theodoor de Booy collected in the Bahamas a broken ceremonial petaloid celt, which is now in the Heye Museum. The edge of this celt and the surface bearing the figure are very much mutilated, but enough remains of the body to enable us to show its form[36] and verify his identification.

[34a] These have been well figured and described by Joyce, in Journ. Roy. Anthr. Inst., vol. XXXVII, pl. LV, figs. 1–4.

[35] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. XV.

[36] This specimen is figured by Mr. de Booy in his article on Lucayan Artifacts in Amer. Anthrop., n. s., XV, No. 1, p. 6.

A



PETALOID CELT, HAITI (BERLIN MUSEUM)

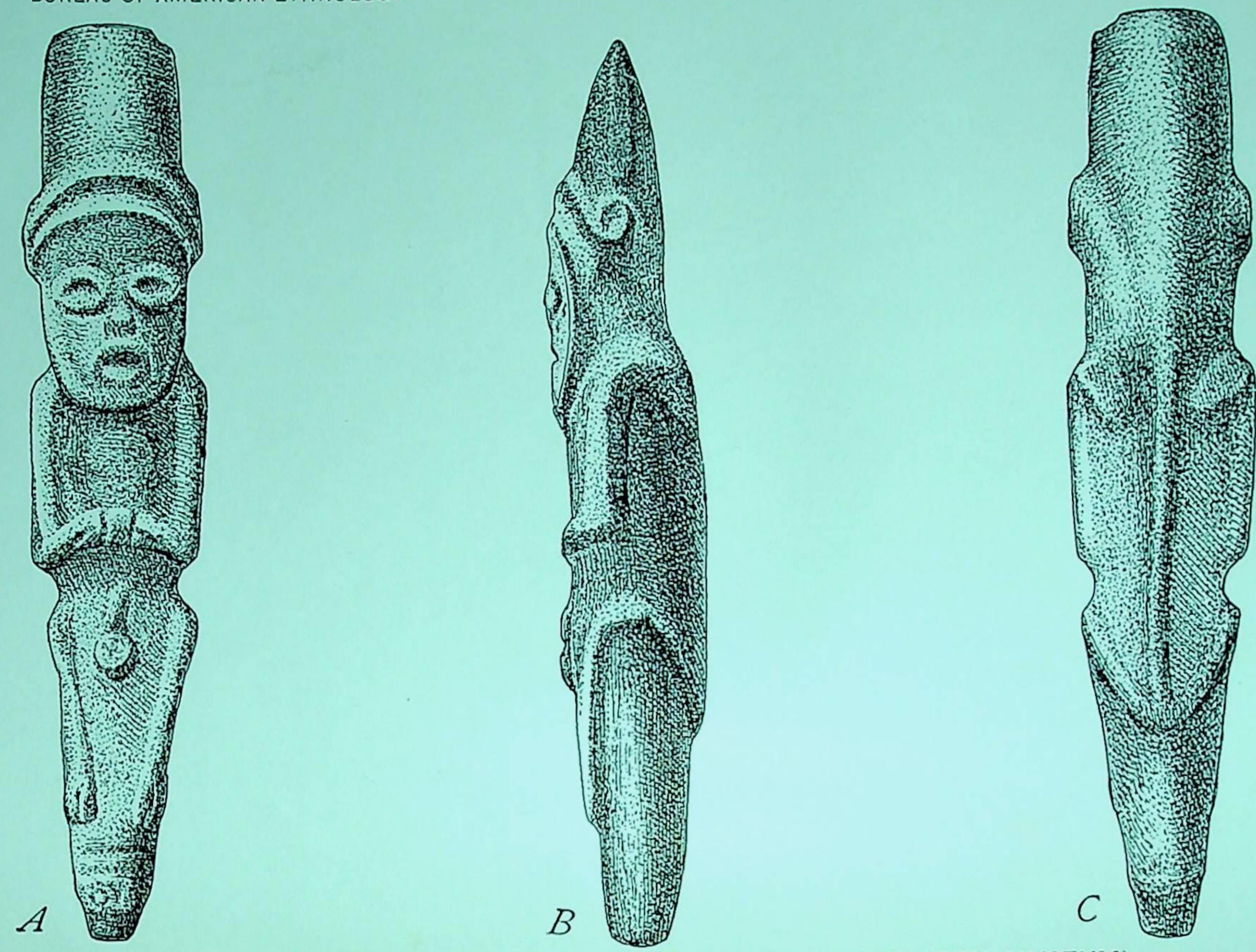


C

B

ENGRAVED PETALOID CELTS (BERLIN MUSEUM)

A, 2.88 inches; *B*, 13.5 inches; *C*, 8.25 inches.



ENGRAVED PETALOID CELT, SANTO DOMINGO (COPENHAGEN MUSEUM)

A, B, C, 15 inches.

7. *Museum of the University of Havana.*—Aside from a brief field note made by the author, there is little information concerning a ceremonial petaloid now preserved in the University of Havana. This specimen was thus referred to in the author's article on the Prehistoric Culture of Cuba:[37] "Among the objects seen in these two collections [Academia de Ciencias, and University at Vedado] are 10 petaloid celts in the Academy museum and about double that number at the University. One of those in the latter collection has a stone handle like those obtained by me in 1903 in Santo Domingo. There is also a celt with a face cut on one side—evidently a ceremonial celt like one in Archbishop Meriño's collection."

8. *Copenhagen Museum.*—There is a remarkably engraved petaloid celt in the Ethnological Museum of Copenhagen, Denmark. This specimen (pl. 89, *A*, *B*, *C*) is of a hard black stone, well made, with its surface smoothly polished. It is said to have come originally from Santo Domingo, and to have been added to the museum in the year 1861. Through the kindness of Prof. Sophus Muller, director of the museum, the author has been able to take the photographs from which the accompanying illustrations were made. The only other figure of this object is published by Rudolph Cronau in his book on America.[38]

Certain implements ascribed to prehistoric Santo Domingo find a fitting place in our classifications near the ceremonial petaloid celts. Their form is somewhat different, but can readily be reduced to the same type. The main difference appears to be the absence of a cutting edge, the pointed end being prolonged into a long pointed blade. These objects with figures carved on their handles and long blades suggest stone dirks. Two of these are known to the author.

9. *Heye Museum* (Stone "Dirk").—On his expedition to Santo Domingo, in the interest of the Heye Museum, Mr. Theodoor de Booy collected in that Republic a stone dirk (pl. 90, *A*, *B*, *C*) which, while allied to some of the incised ceremonial celts, still shows a form quite unlike any previously described. The specimen was formerly in the collection of the late Señor José Gabriel Garcia, of Santo Domingo City. Its general form, as shown in a photograph taken by Mr. Theodoor de Booy, from side, front, and rear, resembles a dirk, the handle of which is modified into a rude figure of a human being, and the pointed end prolonged into a blade. It measures 8 inches in length.

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[37] Amer. Anthrop., n. s., vol. VI, No. 5, p. 594.

[38] Amerika, vol. I, p. 357. Cronau labels his figure of this object, a "hand weapon," an identification that is not far from correct.

10. *Blackmore Museum* (Stone "Dirk").—Mr. E. T. Stevens[39] has figured another stone dirk which also came from Santo Domingo. This specimen shows signs of secondary work, and the "tool marks" upon it, according to Stevens, "have been removed by subsequent polishing." The same author likewise calls attention to a "sketch of a somewhat similar weapon" engraved upon a map of Santo Domingo, published in 1731.[40] This specimen is described as having been found in an Indian sepulcher.

In considering the morphology of these dirks we may theoretically suppose that they present the most highly specialized form of incised or ceremonial petaloid celts, but it may be that the part interpreted as a blade was used as a handle by which the object was carried in the hand. This handle may have been inserted into a staff, or set in a stand, or even planted in the ground. The use of this object is problematical, but there is little evidence that it was ever tied to a handle midway in its length.

While the celts above described have in one or two cases lost the original form of this implement, their relation to an undecorated petaloid is evident and the main characters of the type are preserved. The modifications are not difficult to follow.

The cultural differences in the prehistoric aborigines of the Greater and Lesser Antilles are nowhere better shown than in the characteristic types of implements. Stone implements of the former islands are celts without grooves for hafting, while axes with marginal notches, enlarged heads, or encircling grooves are characteristic of the latter islands. The celts of the former islands recall Central American or North American forms; the axes found in the Lesser Antilles are more South American.

The type called celts, with smooth or decorated surfaces, described in the preceding pages, is not found in the chain of islands from the Danish Islands south from Anegada Passage to South America; neither have similar petaloids yet been reported from the adjacent continent. It may therefore be regarded as characteristic of the Greater Antilles, as are also elbow stones, stone collars, and tripointed zemis or stone idols. The technique of these objects from the West Indies is superior to those found in the southeastern area of the United States, but not better than those from the coast of Central

[39] According to Mr. Stevens (Flint Chips, p. 226): "Two similar specimens are in the Christy collection; another is in the collection of Mr. Hodder M. Westropp, of Rookhurst, Cork; and another, said to have been found at Aigueperse, near Riom, Puy de Dome, France, is in the Clermont Museum."

[40] The following footnote reference to this map appears: "The map is entitled, 'L'Isle Espagnole sous le nom Indien d'Hayti, ou comme elle étoit possédee par ses habitants naturels lors de la decouverte, avec les premiers Etablissemens des Espagnols. Par le Sr. D'Anville, Geographe Ord. du Roi. May, 1731.' The figure of the implement has been copied in the 'Trans. Amer. Ethno. Soc.,' vol. III, part 1, fig. 7*a*."

America—a fact which, so far as it goes, points to ethnic kinship with the latter rather than with the former area. It can also be shown that the stone axes of the Lesser Antilles, like the ceremonial petaloids above described, bear incised decorations on one side, although so far as known these incised figures represent geometrical designs and not human faces or bodies.

In connection with these ceremonial celts should be mentioned another type reported from Cuba by Señor Andres Poey, who in 1855 read before the American Ethnological Society a paper entitled "Cuban Antiquities; a Brief Description of Some Relics found in the Island of Cuba." According to Dr. Brinton this paper was not published in English, but Señor J. L. Garcia printed a Spanish translation of it in Volume IV of his "Revista de la Habana." This apparent contradiction is explained when we know that the edition of the publication in which Poey's article appeared was burned, but was subsequently reprinted in facsimile in 1909 by the American Ethnological Society.[41]

This object (pl. 93, *A*), according to Poey, was found by "D. Miguel Rodriguez-Ferrer in the eastern department of Cuba at a place called the Junco, in the jurisdiction of Baracoa, in the interior of a wood, at a depth of 3 feet below the surface of the ground."

The original account as represented is as follows:[42] "[Fig. 2] is a correct representation of the second relic and is one-fourth of the size of the original. All the figures seen on one side are exactly reproduced on the other. These are so admirably executed that I am inclined to think they must have been done with a mold; the particular reasons for which conclusion are: 1st, That the measurements in both sides are so exactly alike that it seems almost impossible to have regulated the work merely by the eye or even by a compass; 2d, all the figures are executed on both sides in alto-relievo; 3d, the outlines of the figures are perfectly smooth. The stone, which is very hard and of a brownish red color, had originally a thick coat of varnish and was neatly polished, as is easily seen in those parts where the varnish has not been destroyed by friction. *A*, *B* is a vein of quartz which passes through the stone at an equal distance from the circumference. There is a slight groove cut all around it. The stone gradually diminishes in thickness from the center to the circumference. It is difficult to conceive what operations can have been performed with this implement unless we suppose it to be an ax. Were we to look for any animal representation that of a fish would most probably be the true one."[43]

[41] Trans. Amer. Ethn. Soc., vol. III, pt. 1, pp. 183–202.

[42] Ibid., pp. 187–188.

[43] This object is also mentioned without figure in my work "Prehistoric Culture of Cuba," Amer. Anthrop., n. s., vol. VI, p. 589.

As may be seen in plate 93, *A*, from a photograph by Señor Nacisso Sentenach, procured in Madrid by Prof. Saville, this specimen has an ax form with a somewhat broken edge and a head in relief on the opposite end or poll. Its general form is oval, the surfaces plain, slightly convex, its margins rounded. The thickness is much less than the length or breadth.

The unique characteristic of this ax is the head on the poll and its relative position respecting the longer axis. The form of the nose, mouth, eyes, and forehead suggests the head of a human being and the appendages represented in low relief on each side suggest fingers or flippers at the extremities of the arms. The boundary between body and head is a curved line near which on the under surface back of the chin are indications of folds. The straight line extending across the head and body passing through the eyes diagonally is the quartz vein in the stone to which reference is made by Poey. The resemblance to a fish is not striking.

In comparing this blade with the ceremonial celts mentioned above, it will be noticed that in the latter the head or figure is engraved on one side, and the median line of the engraved figure corresponds with that of the middle line of the side of the ax, while the middle facial line of the Cuban specimen is at right angles to the middle line of the blade. This is the only known ax which has the butt modified into a head, although there is something similar in monolithic axes from Santo Domingo and Haiti.

In the Heye collection there is a fractured ceremonial celt collected by De Booy in the Bahamas which connects ceremonial celts and engraved stones with heads or human figures which have lost their likeness to celts. This specimen preserves a likeness to decorated petaloids as well as to stone images where the petaloid form is lost, and may be said to connect these two types and possibly suggest a meaning for both. It was found in a negro cabin in Mariguana Island, Bahamas,[44] and is thus referred to by De Booy, in an article, "Lucayan Artifacts from the Bahamas": [45]

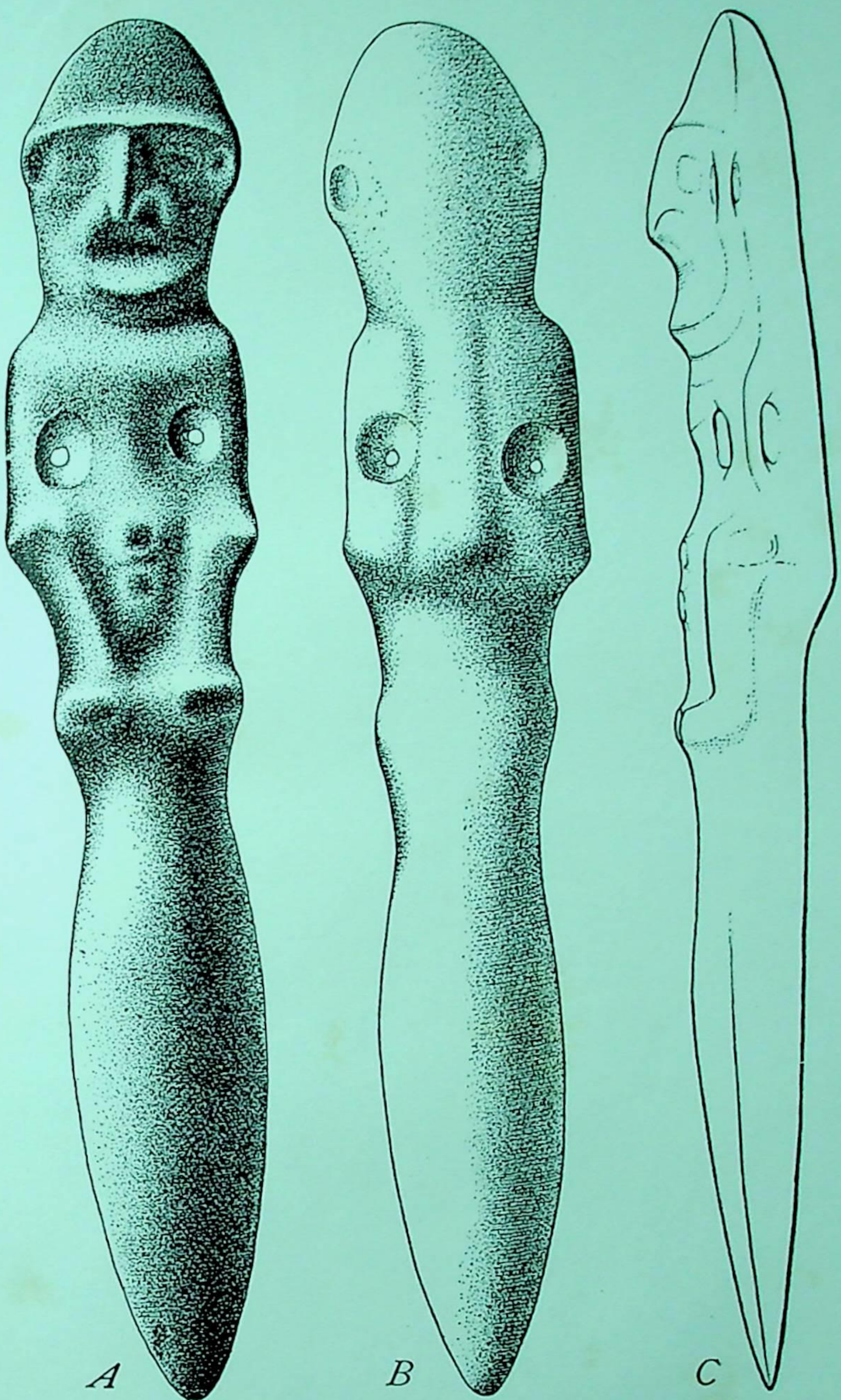
"Although in fragmentary condition, this object shows clearly what the original outlines must have been, and it may be included among the best examples of prehistoric stonework from the Bahamas * * * The celt is petaloid and is made of a green, slate-like stone, possibly of volcanic origin."

Mr. De Booy adds this important information about the object: "The figure on the celt is shown in a seated posture and is carved in low relief. The knees and arms point inward and the hands rest

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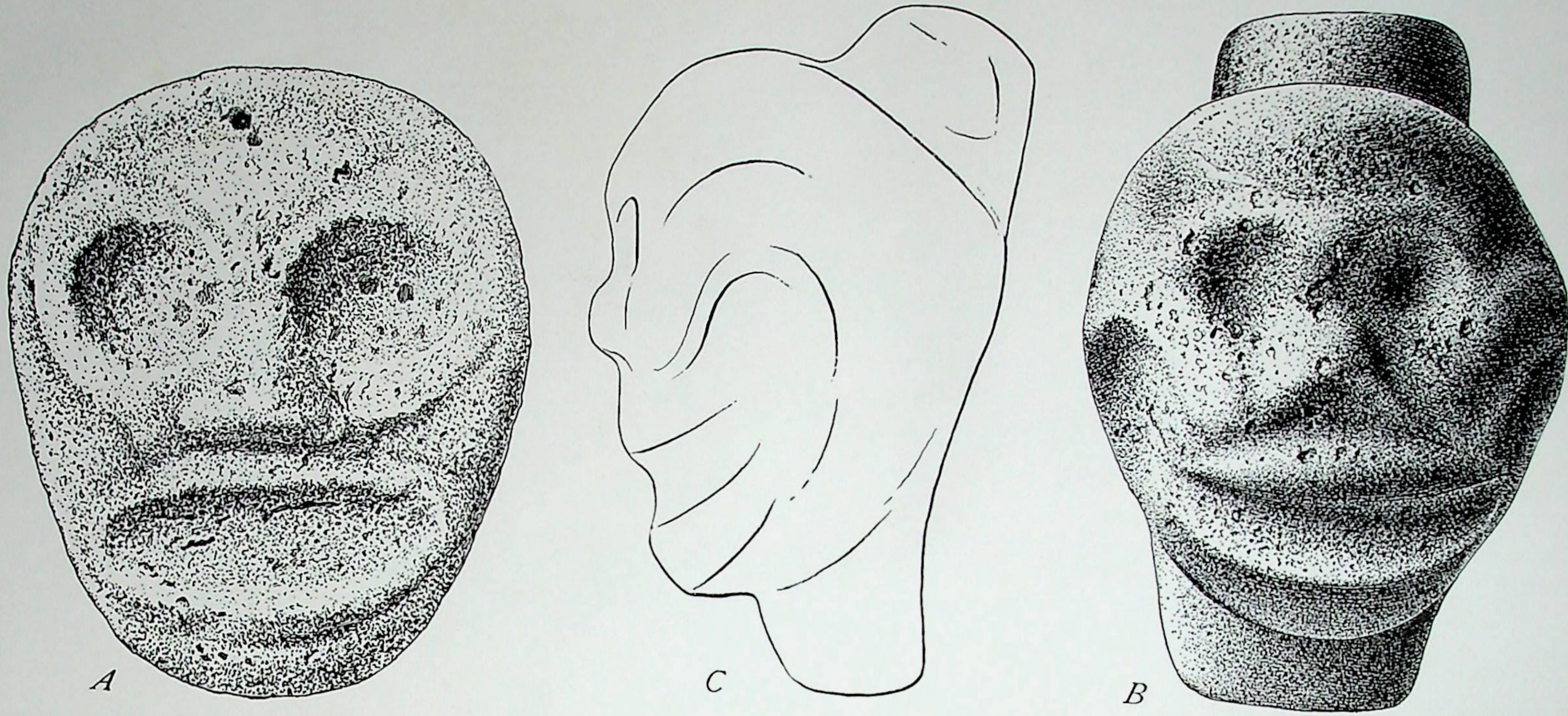
[44] The character of the stone of which it is made shows that it did not come from a coral island like Mariguana, and the resemblances in technique and culture ally it to Haitian forms.

[45] Amer. Anthrop., n. s. vol. xv, p. 6.



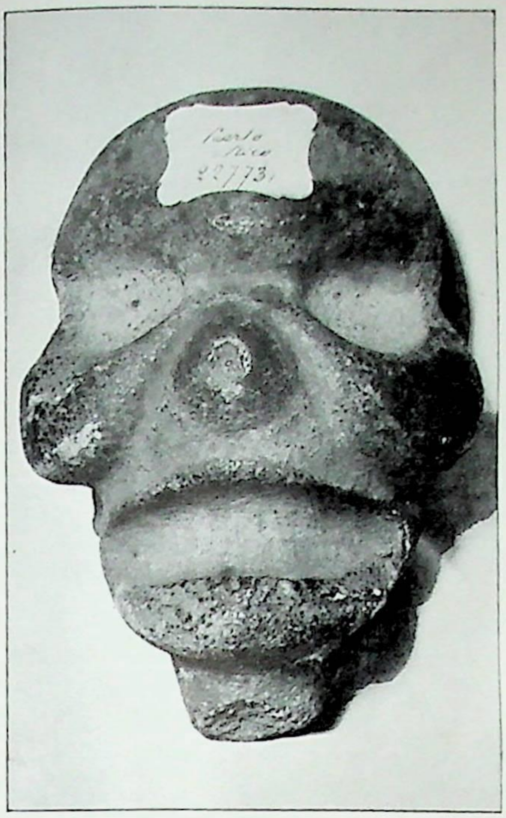
STONE DIRK

A, B, C, 8 inches.

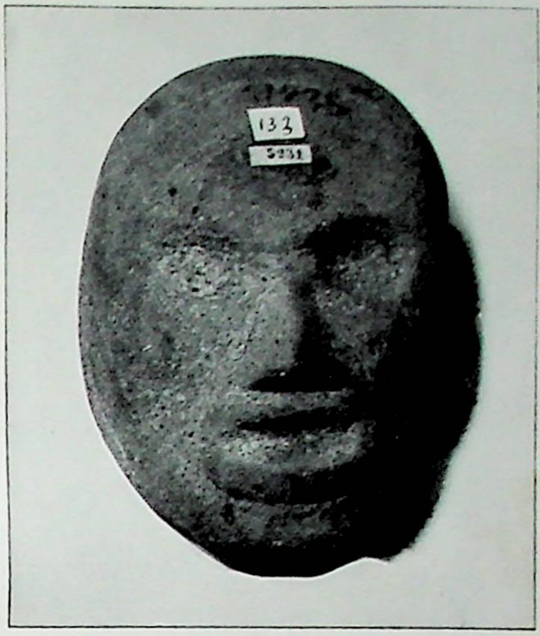


STONE HEADS (*A*, GUESDE COLLECTION, BERLIN MUSEUM; *B*, *C*, HEYE MUSEUM)

B, *C*, 7.5 inches.



A



B

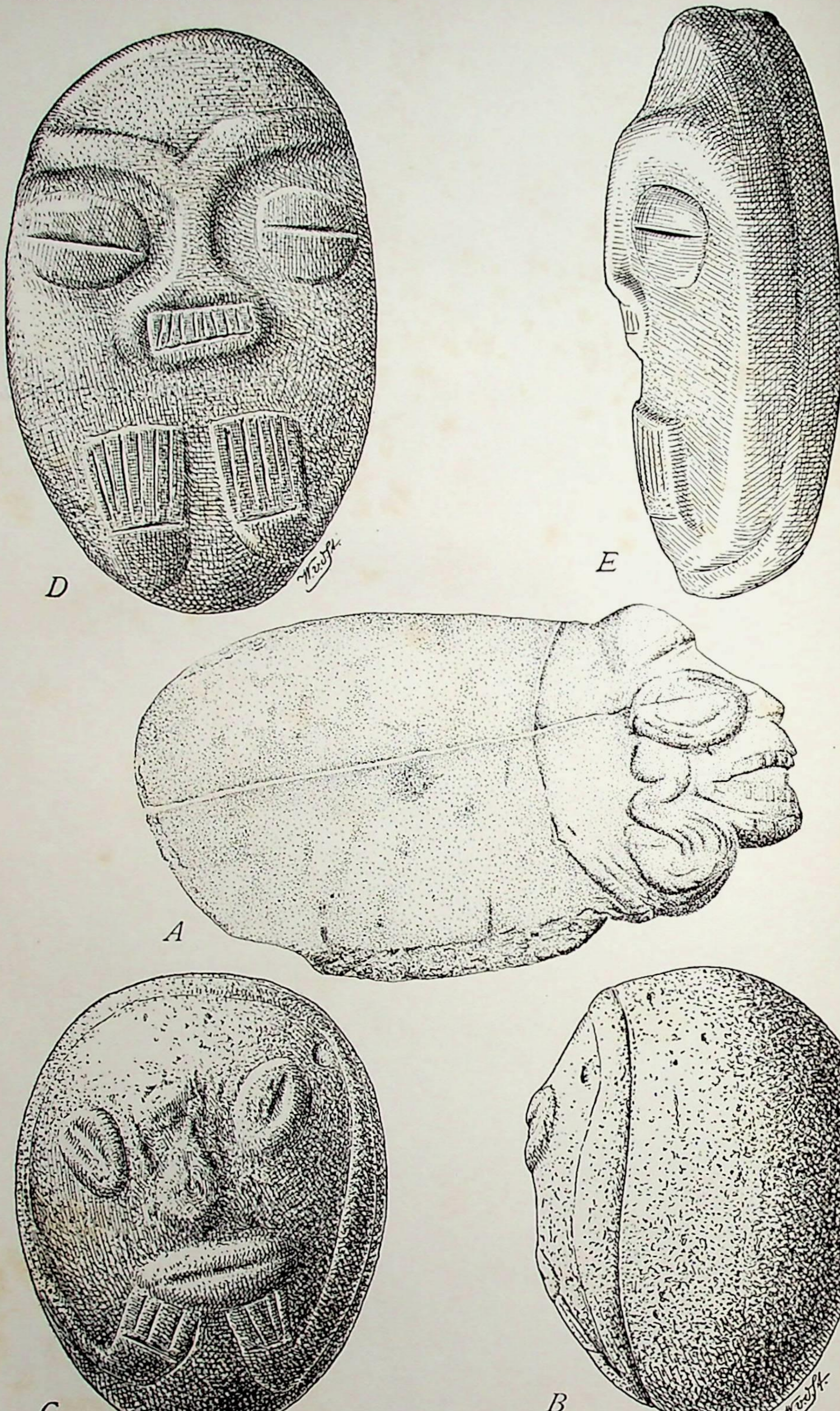


C



D

STONE HEADS (TROCADERO MUSEUM, PARIS)



CELT AND STONE BALLS WITH ENGRAVED FACES, HAITI, CUBA
(BERLIN MUSEUM)

under the chin. The body itself is not shown. The fingers and toes are represented by shallow grooves. The head is indicated by a carved circle, of which, owing to the fact that the top of the celt is missing, not more than half can be seen. However, the right ear is still shown outside the circle. The eyes and mouth are cut in intaglio; the nose and the right eyebrow are in low relief."[46]

The general style of the stone cutting is very similar to that of an idol now in the Trocadero Museum, Paris, although the disposition of the limbs is different and the latter has a large umbilicus, which is missing in the Bahama specimen. The outlines of the faces of both are similar and the details of the carving of the nose almost identical.

Mr. De Booy, in the author's opinion, has correctly identified this specimen as a ceremonial celt, but it has certain features that impart to it an interest apart from its resemblance to an engraved petaloid. One of these features is the manner in which the hands are brought to the body, as the grooves representing fingers are longitudinal instead of horizontal.

HUMAN HEADS AND FIGURES

The passage from petaloid celts with human faces or heads engraved upon them to stone heads that have lost all resemblance to celts bifurcates into two directions, one of which leads to stone heads with a prolongation on the back of the head, either above or below or in both directions; the other to stones with graven heads or faces, but with no projections. The former are called in the author's Aborigines of Porto Rico stone heads; the latter, stone masks.

In neither of these are the limbs or body represented with the heads, which separates them from another group in which portions of the body or limbs or both are represented. In both also the semblance to a ceremonial celt is lost by the absence of any representation of the point or cutting edge. In the other group we have simply a stone nodule with representations of a human head or other parts of the body carved on its surface. These forms have no visible projections by which they could have been lashed to a staff or which may have served as a handle.

Figures of various forms of stone heads with projections for lashing will be found in the article on the Aborigines of Porto Rico, and in Mr. Joyce's paper already mentioned,[47] where they are called stone heads. Heads or faces (pl. 91, *A*) cut on the surfaces of stones without projections by which they may be attached to a staff are also figured in my article under the name "stone masks"—a term open

[46] Amer. Anthrop., n. s. vol. xv, pp. 6, 7.

[47] Prehistoric antiquities from the Antilles, in the British Museum. Journ. Roy. Anthr. Inst., vol. XXXVII, pp. 402–419.

to some objection. In none of these are there representations of body or legs carved in stone with the head.

Stone Heads

One of the most interesting forms of stone heads in the Heye collection is shown in plate 91, *B*, and represented from the side in plate 91, *C*. This head is globular, with two projections on the back, one above on the crown of the head and the other below under the chin. The cheeks are marked by depressions, one on each, and above each depression there is a ridge, which becomes so pronounced in the following specimens from the Pinart collection in the Trocadero Museum that they seem to show the bones of the jaws or to resemble skulls, suggesting a death god.

An illustration showing one of these heads with pronounced likeness to a human cranium is shown in plate 92, *A*, from the Trocadero Museum. This object, the gift of Mr. Schöchler to the museum, was found in Porto Rico, and measures 0.145 by 0.09 m. It has a prolongation in the place of a neck by which it was attached to some foreign body.

The head shown in plate 92, *B*, is cut in low relief on a stone nodule 0.12 by 0.09 m., and has visible projections by which it could have been attached to a foreign object. The nose, lips, and eyebrows are cut in low relief, the eyes and the mouth being indicated by shallow depressions.

The stone head shown in plate 92, *D*, is said to have come from Martinique, although it recalls in general features those from Santo Domingo. This specimen has been so mounted as to resemble a bust, and has marked European technique with the exception of the earrings, which show decided Antillean features. This bust is in the Trocadero Museum, Paris, and measures 0.20 by 0.18 m. I have many doubts of its prehistoric character, but have introduced it here to show the manner in which the ear ornaments were set in the lower lobe of the ear. It is mounted in a way different from that implied in the forms of other specimens, where the neck was probably lashed to a stave or staff.

Stone Nodules and Masks

A stone face in the Heye collection represented in plate 94, *C*, has all the essential features of these objects as figured in the author's Aborigines of Porto Rico.

The surface on which the face is cut is flat, the opposite convex, without prolongation or groove for attachment. The features that distinguish this mask from others are the two triangular engraved figures below the mouth which probably represent the limbs or body.

Plate 94, *B*, also in the Heye collection, represents one of the simplest forms of stone masks. It has an oval form, with eyes and mouth represented as shallow depressions, while nose and lips are in relief. It has all the features found in the typical stone masks, but is distinguished from the majority by the two round symmetrical protuberances, one on each cheek. In some of the engraved stones that have lost all resemblance to masks, homologues of these protuberances alone remain, and in one or two instances there are three of these projections, one on each cheek and one in the middle of the forehead.

The nodule type is differentiated from stone heads and stone masks because body and limbs, one or all, are graven on them. There survives in them no indication of the point or cutting edge of a ceremonial celt and no projection by which they can be bound to other objects. To all intents they resemble idols except that they are destitute of any flat base by which they may be made to stand upright. They show no evidence of having been attached to a wooden base or a puppet made of fabrics which has been suggested for the head. This type was unknown when the memoir, Aborigines of Porto Rico, was written, and so far as known has not been differentiated from the other types.

There are in the Berlin Museum three specimens which can be referred to this type, the essentials of which will appear in the following description:

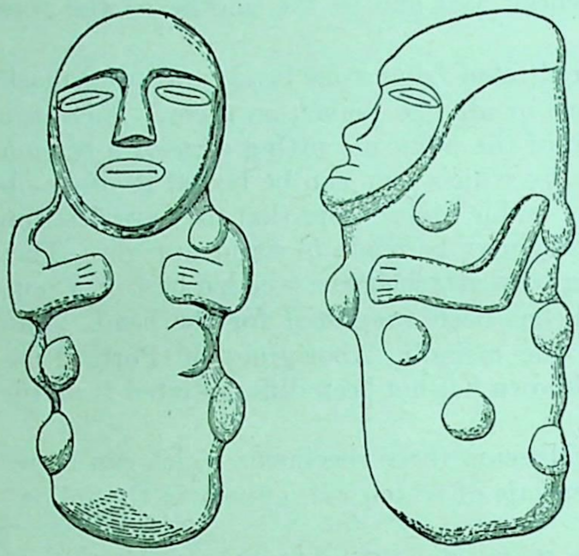
The first of these (pl. 93, *B*, *C*), from Cape Haïtien, has an almost globular form, more like an ovate spheroid, in which the organs of the face and arms are cut in low relief on one side. The eyes, represented by simple slits, are cut obliquely and are surrounded by a raised side. The lips are large and the nose more or less broken. Just below the lower lip we find representations of the fingers, four in number, connected by a ridge that surrounds and incloses the face. This ridge probably represents the arms, the elbows being situated just below the hands.

The nodule figured (pl. 94, *A*) is from Les Cayes, Haiti, and is much more complicated in its carving, because both arms and legs are represented. In this specimen the chin is pointed, and the face has the eyes, nose, and teeth carved in relief. The nose has an inverted T shape. The forehead is low and, like the chin, indicated by a curved line. An exceptional feature of the face is the two parallel vertical markings on each cheek. These recall the grooves on the cheek of an etched stone from Nipe Bay, Cuba, elsewhere figured.[49]

[49] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. LXXII, *b*, and Amer. Anthrop., n. s. vol. VI, no. 5, pl. XVIII, 1.

Ridges representing the arms on each side of the stone extend backward, forming shoulder blades, and lengthwise for upper arms to the elbows, ending in hands a short distance below the chin. The legs are made in low relief extending to the knees.

A flat form of stone nodule is shown in plate 93, *D*, *E*. This specimen has the hands turned upward and the raised ridges representing the arms inclose the face. The eyebrows arch over the eyes and are continued into the nose, which bifurcates above the teeth, inclosing the mouth and forming the lower lip. The teeth are indicated by parallel ridges alternating with grooves.



a *b*

FIG. 31.—Stone idol. *a*, Front view. *b*, Side view. (7.25 inches.)

This specimen from Gonaives, Haiti, which is now, like the two preceding, in the Berlin Museum für Völkerkunde, was collected by Dr. Grosser, German consul in Haiti.

The stone object shown in figure 31, purchased in Paris by Mr. Heye, is cylindrical in shape, with a human face cut on one end, and with arms in low relief. The remarkable feature about this object is the knobs, 15 in number, arranged with some regularity, covering the sides and back of the body.

The lower part of the body and the legs of this specimen are missing, probably broken. The specimen is 7¼ inches long and about 3½ inches in diameter at the level of the chin.

In various collections studied by the author there occurs another type of Antillean stone handiwork, the technique of which resembles that on the ceremonial petaloid celt, the stone head, and the mask, but in which there is no projection that might serve as a handle. These are oval or spherical stone balls with face, body, limbs, or complete human forms cut in relief on their surfaces. They recall the ceremonial petaloid celts of the British Museum, figured by Joyce and referred to above. If, for instance, the handle of the latter were reduced in length and the head made more globular, we would have the ceremonial ball referred to.

SEMICIRCULAR STONES

There are several semicircular stones in the Heye collection, one of which, shown from front and side (fig. 32), is particularly well made.

The distinctive features of this type are the semicircular form, flat on one side, convex on the other, and the two ear-like lappets, sometimes modified into heads, one on each side of the base, by which the stone was lashed to a foreign object. In the stone heads these cleats for lashings appear above the head and below the chin, forming a neck, whereas in the semicircular type the ear-like lappets are at right angles to the axis of the face when such exists.

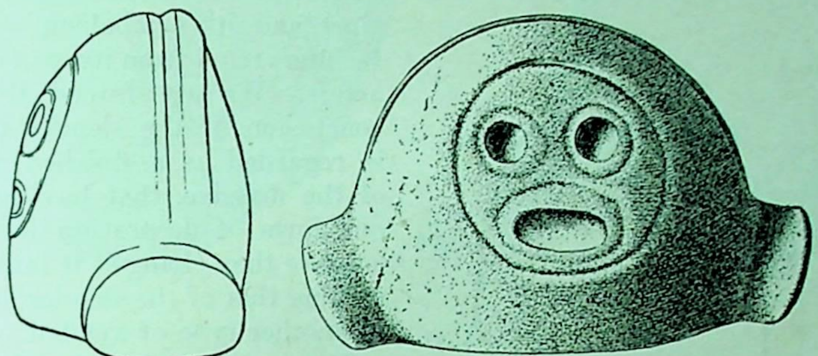


FIG. 32.—Semicircular stone with face, from front and side. (7.31 inches.)

The face on this specimen is indicated by a well-made circle, within which are two circular pits of equal size, side by side, for the eyes, and a third, oval in form, for the mouth. all three being surrounded by ridges.

STONE COLLARS

There are no more characteristic objects from the West Indies than the so-called stone collars, which are prehistoric in origin and of unknown use. These objects appear to be confined to Porto Rico and Haiti, although specimens in some of the European museums are labeled from the Lesser Antilles. The Heye collection contains several stone collars, one of which (pl. 95, *A*, *B*) is unique.

The stone collars of Porto Rico and Santo Domingo have a variety of forms which admit of a classification. There are two great types known from characteristics that are evident—the massive and the slender ovate. Both massive and slender collars are secondarily divided into two groups, right and left handed, accordingly as the knob is on the right or left hand side as the collar is placed in a natural position.[50]

[50] The "natural position" would seem to be in case of the slender ovate with the pointed pole uppermost, the panels facing the observer. In the massive collars, when there is no pointed pole, the situation of the panels determines the upper pole.

The specimen of a massive collar that is represented in plate 95, *A*, *B*, was purchased by the author[51] from Señor Seiyo, of Arecibo, Porto Rico, and is one of the most remarkable of all. This specimen is evidently a connecting link between the massive collars and the slender ovate, the symbolism on it belonging to the massive variety. There is a remote likeness in this to the paneling of the slender ovate variety, but no other collar has a head carved in such high relief.

Several massive stone collars have been figured by archeologists. They have the general features shown in plate 97, *D*,[52] from Paris, which is one of the heaviest of its group. Although massive collars have sometimes been interpreted as unfinished specimens of the slender ovate, there is every evidence that the massive type is wholly distinct and its symbolism should be interpreted from its own characters. We are forced to the conclusion, if the slender ovate is regarded as a finished form of the massive, that having cut one form of decoration for the massive they changed it later, in making that of the slender ovate, to another type of symbol.

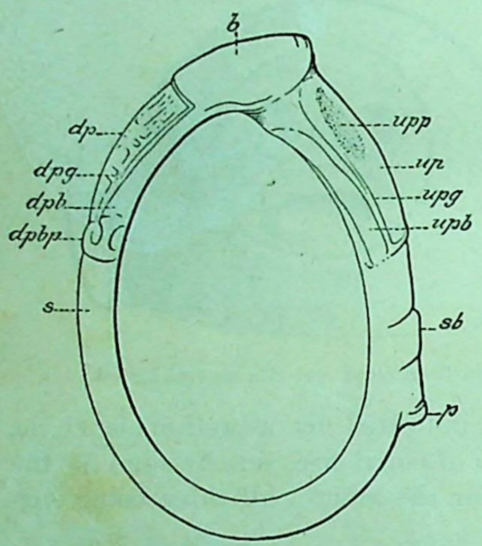


FIG. 33.—Schematic view of stone collar.

The various parts of a slender ovate collar are designated in figure 33 for reference and are known as follows: *b*, boss; *dp*, decorated panel; *dpg*, decorated panel groove; *dpb*, decorated panel border; *dpbp*, decorated panel border pot; *p*, projection; *s*, shoulder; *sb*, shoulder bowl; *upp*, undecorated panel pit; *upg*, undecorated panel groove.

The corresponding parts of a massive collar are designated in the accompanying cut by the same letters. There are intermediate forms connecting the two groups, and the evidences appear strong that both massive and slender collars had the same use.

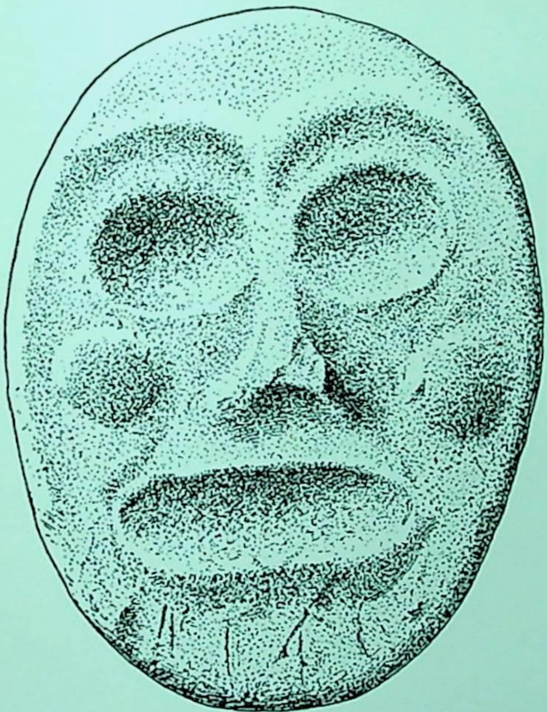
The collar represented in plate 96, *C*, shows the marginal border of the panel highly decorated, while the projection modified into a head recalls one with the snake's head in the museum at Bremen figured by the author.

[51] This beautiful specimen was first figured by the author in his article on "Porto Rican Elbow-Stones in the Heye Museum." The author's figure is reproduced by Joyce, "Central American and West Indian Archaeology," pl. XIX.

[52] The author is indebted to Prof. M. H. Saville for the photograph here reproduced.



A

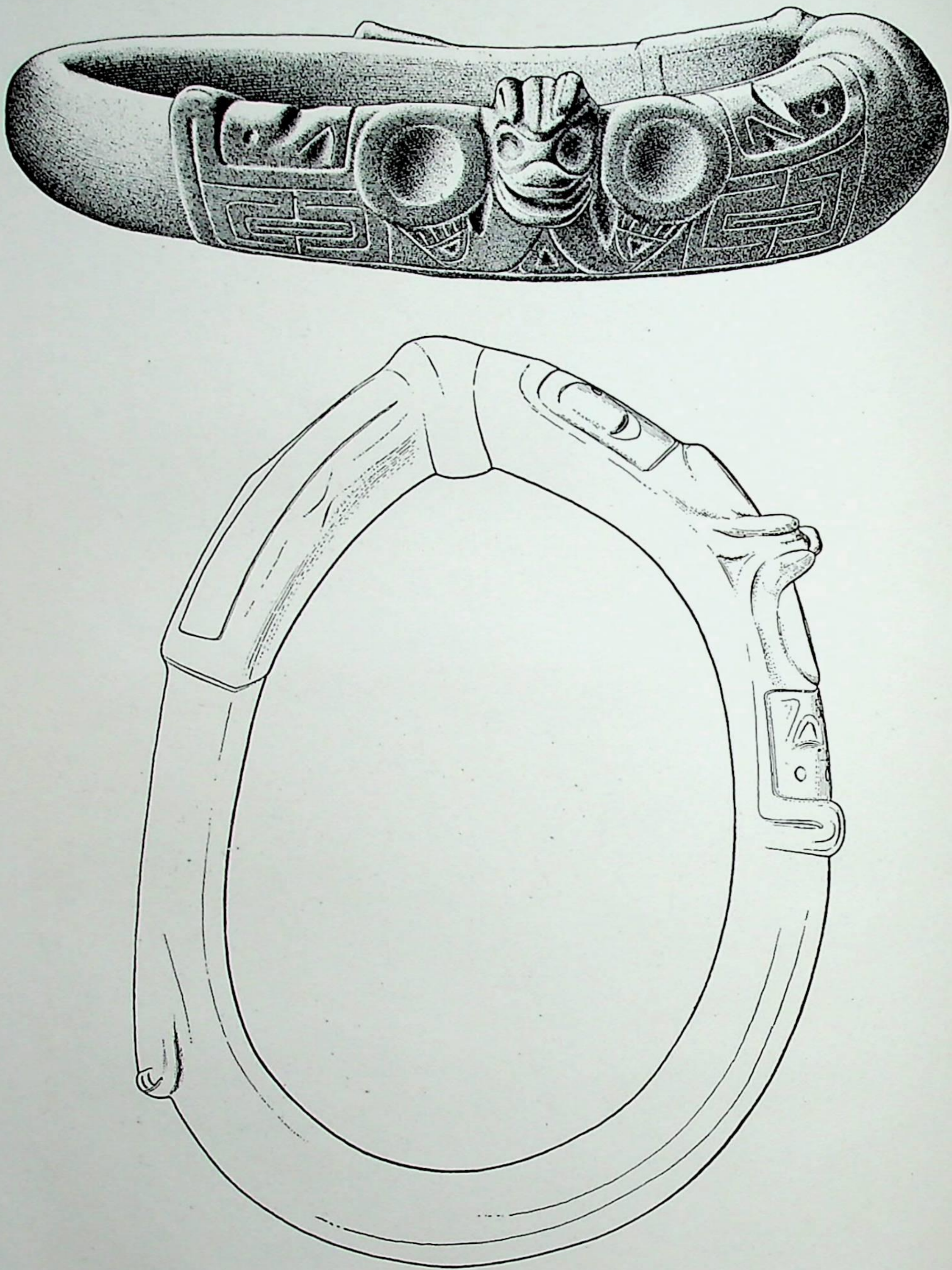


B



C

A, STONE NODULE; *B*, *C*, STONE MASKS, HAITI (*A*, GROSSER COLLECTION, BERLIN MUSEUM)



MASSIVE STONE COLLAR, PORTO RICO

20.5 by 16 inches.



A *B*

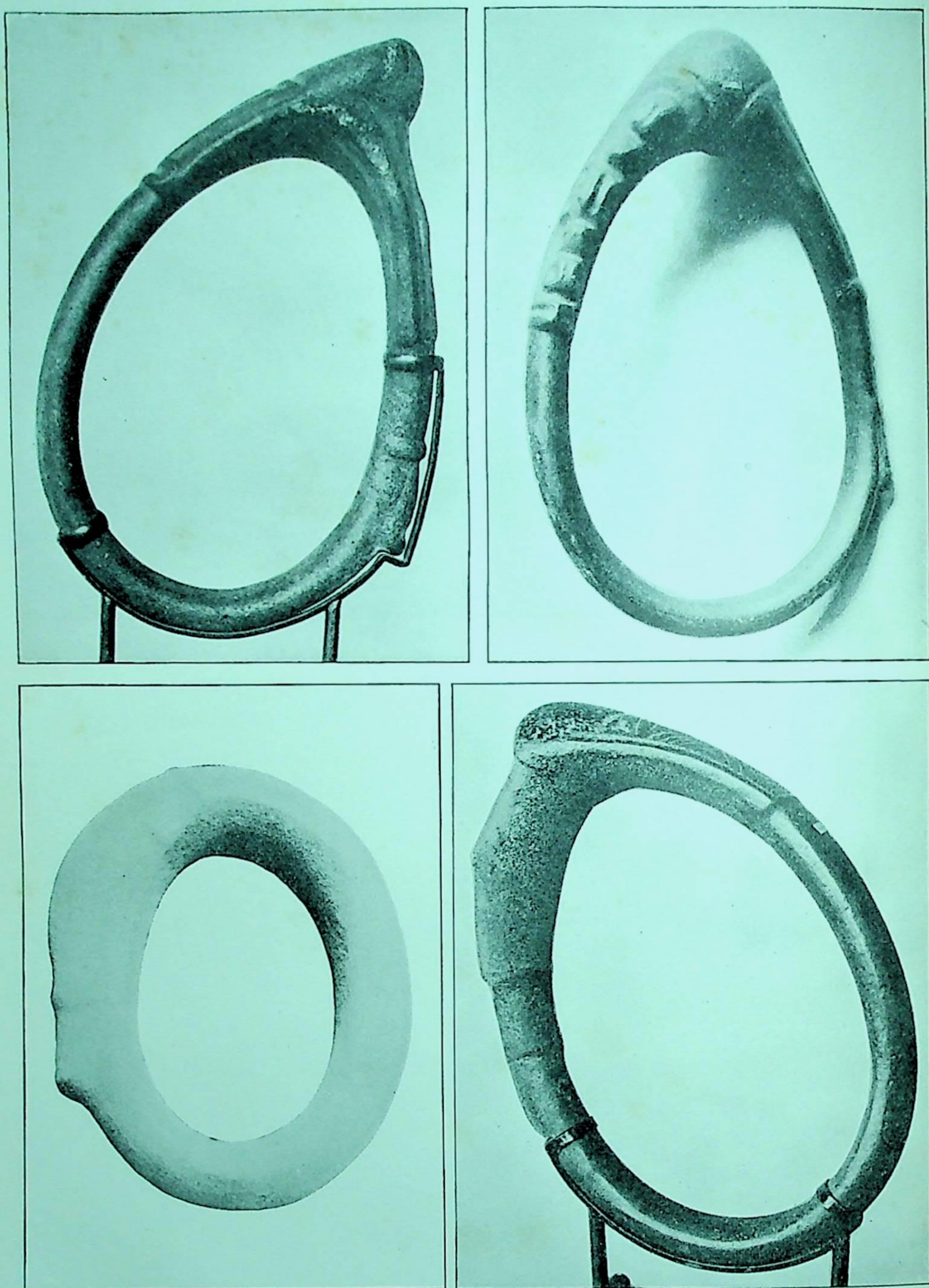


C *D*

SLENDER STONE COLLARS, PORTO RICO

C, 18 inches; *D*, 17 inches.

B *A*



D *C*

A, *B*, *C*, SLENDER STONE COLLARS; *D*, MASSIVE STONE COLLAR, PORTO RICO
(TROCADERO MUSEUM, PARIS)

The specimen, plate 97, *A*, from a photograph procured by Prof. Saville from Dauberton, Paris, shows modifications in the edge of the undecorated panel border, somewhat different from the last, although comparable with it. The parts represented are a median head with lateral appendages, recalling the more extensive design on the elaborate form of the massive collar (pl. 95, *A*). The slender ovate collar figured in plate 97, *B*, is in the Trocadero Museum, Paris, and is exceptional in the relatively large development of the boss. There is also a remote resemblance in the projection to a head, which assumes the reptilian form in the specimen from the Bremen Museum. Incidentally attention may be called to the neat method of installation which is worthy of adoption in other museums.

In another specimen from the same museum shown in plate 97, *C*, the boss is not as prominent, and the region of the undecorated panel is more massive. The shoulder band is broad, the projection not being visible in the view here given. The photograph (pl. 97, *D*) here reproduced was likewise made by Dauberton, and procured for the author by Prof. M. H. Saville.

One of the most instructive stone collars known to the author was described by him in his article on "A Prehistoric Stone Collar from Porto Rico."[53] The knob of this collar is modified into the head of a serpent or some reptile. In this article the author shows that the knobs of several collars may represent the heads of some reptilian form and if that conclusion has any important significance in a determination of the identify of the type we may adopt the serpent theory, or that the stone collar represents a serpent idol. In this article the homologies of other parts of stone collars are considered to such an extent that the paper is here quoted at length.

Attention was first called to a stone collar with knob modified into a snake's head in the following lines of an article on Porto Rico Stone Collars and Tripointed Idols:[54] "Sometimes the projection is ferruled, often with pits like eyes, and in one collar the prominence is said to have the form of a snake's head." To this is added the following note: "This specimen is owned by Mr. Leopold B. Strube, of Arecibo, who has sent the author a drawing which shows the knob in the form of a snake's head." This reference was later quoted in the writer's memoir on the Aborigines of Porto Rico.[55]

On a recent visit to Europe the author examined the specimen, now in Bremen,[56] and made the drawings reproduced in figures

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[53] Amer. Anthrop., n. s., vol. XVI, pp. 319–330.

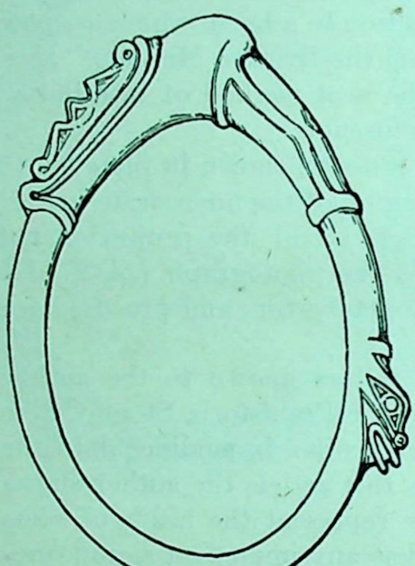
[54] Smithsonian Miscellaneous Collections, vol. XLVII, pt. 2, 1904.

[55] Twenty-fifth Ann. Rept. Bur. Amer. Ethn.

[56] The author acknowledges with pleasure his indebtedness to Dr. Johannes Weissenborn, curator of ethnology in the Stadliche Museum, Bremen, for the opportunity of studying this instructive specimen.

34–37. A glance at the first of these shows that it belongs to the type called by the late Prof. O. T. Mason[57] the "right-handed variety of the slender oval group."

This collar is made of a hard, light-gray andesite or diorite, with surface fairly smooth but not finely polished. Its general form is not unlike other examples of the slender ovate type. The special differences are found in the ornamentation of the decorated panel border and the modification of the projection or knob into an animal head. It measures 15 and 11 inches in greater and lesser diameters, respectively.


FIG. 34.—The Strube stone collar (Bremen Museum).

The undecorated panel shows no exceptional features, except that the rim is pinched midway of its length into a triangular projection, as shown in figure 34, but which could be better seen from one side. A slightly raised band extends around the collar, just below the so-called boss or elbow, joining the upper and the lower margin of the decorated panel border. As will be pointed out presently, the head carved on the panel border is very well made and instructive.

Lateral and dorsal representations of the knob modified into a head are shown in figures 35 and 36.

Before the author had examined the Strube specimen he was of the impression, from sketches of the objects, one of which was kindly sent to him several years ago by Herr Strube, and the other by Prof. W. H. Holmes, who saw the specimen in the Bremen Museum, that the head replacing the projection or knob represents that of a serpent, but he is now able to point out a more striking resemblance to the head of some other reptile, a conclusion reached mainly from comparative studies of similar heads found in some of the three-pointed stone idols of the first type, figured elsewhere.[58]

The three-pointed idols with heads like those of the Strube collar also possess legs, which would prohibit their identification as serpent idols and would weigh against acceptance of the opinion that the head on the collar represents a snake, were it not for the fact that primitive man is not always consistent in fashioning his images;

[57] Latimer Collection of Antiquities from Porto Rico in the National Museum at Washington, Smithsonian Report for 1876.

[58] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pls. XXXIX, *a*, *a'*; XLI, *b*, *c*; XLII, *a*, *b*; XLIII, *a*, *a'*.

hence the heads of both, even when furnished with limbs, may represent some serpent monster, the iguana, or a reptile with the body and appendages of a turtle.

The modification in the projection in this collar, although less usual than other features, is not more instructive than the unique figures graven on the border of the decorated panels. The surface of the panel is not exceptionally ornamented, but its border is sculptured into the form of a head with lateral appendages much better made than is generally the case.

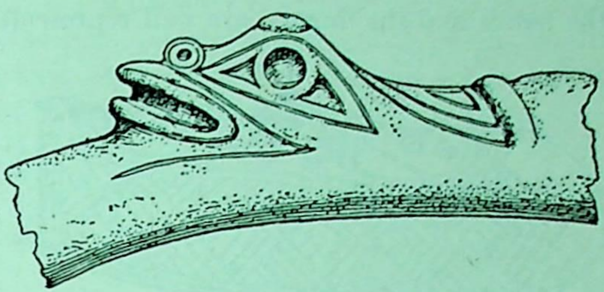


FIG. 35.—Lateral view of "knob" of the Strube stone collar (Bremen Museum).

The appearance of the head and legs on the panel border of this specimen (fig. 37) are as exceptional in form as the knob, for, unlike the heads cut on the panels of other slender oval collars, the head of this specimen is in high relief. The relation of the head to the collar is here exactly reversed, as compared with that of almost all other collars, for the forehead adjoins the panel instead of being turned away from the decorated panel. The two lateral appendages extending along the border on the sides of this head are readily comparable with similar figures, in the same position, on other collars. A representation of the head and appendages as seen from below shows that the lower jaw is pointed and triangular.

The form of the decorated panel border of the Strube collar (fig. 37) bears directly on our interpretation of this feature in other collars and sheds light on the meaning of certain conventionalized figures on other specimens in which the head form is not so evident as in this specimen, as may appear from the following comparisons.

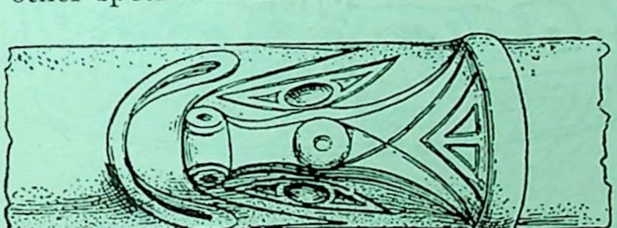


FIG. 36.—Dorsal view of "knob" of the Strube stone collar (Bremen Museum).

The decoration on the panel borders of different stone collars falls naturally into a series passing from realistic to conventionalized figures, shown in the accompanying figures. In order to interpret these decorations we may pass from the most complicated to the simplest form.

Commencing with the form shown in figure 38, representing a specimen now in the Heye collection, we have a massive collar with a head cut in high relief on the surface of one side. This head (*h*)

resembles those constantly found engraved on stone images or modeled in terra cotta for handles of Antillean bowls or vases. It represents a being wearing a kind of Phrygian cap, with mouth half open, large eyes, and other features recalling a turtle or some reptile. Two arms (*a*, *a*), with the elbows bent and showing the palms of the hands and the fingers, are well represented and rise from under the chin. The hands appear to hold up rings cut at the sides of the head, which they touch on each side, and are interpreted as representations of ears or ear ornaments. These rings recall the lower lobes of the ears in certain stone yokes found in Vera Cruz and other Mexican States. The umbilicus appears on the body just below the chin, and on each side are rectangular carvings (*d*, *p*), supposed to represent other parts of the body.

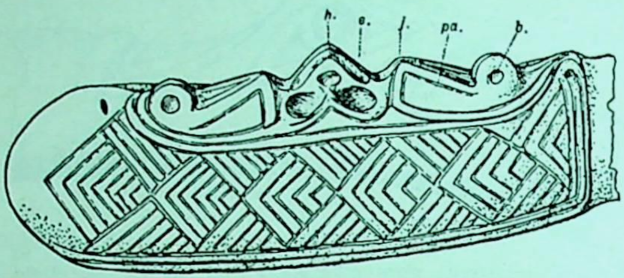


FIG. 37.—Decorated panel and panel border of the Strube stone collar (Bremen Museum).

In the collar of the Heye collection there is practically no separation of the panel border and the panel, or rather the former has extended over the latter, which remains as a rectangular design (*d*, *p*) filling the areas on each side of the anterior appendages (*a*) and below the problematical lateral extensions (*pa*).

Extending on each side of these rings on the upper margin of the collar there is an interesting conventional figure in relief, unlike a leg or any other part of the body, but which is seen constantly in modified form in other collars. In a general way this decoration (*pa*) consists of a distal portion, which is more or less angular and of cubical form with a median pit (*b*), and a proximal region connected by means of a knee-shaped relief figure (*j*), with the head and all other portions of the design. The parts represented in this carving are the head, forearms, ear lobe or ornament of the ear, and a knee-like problematic body. Every organ except the last can be readily identified, but in order to determine the meaning of the knee-like member we must consider similar relief designs on collars in other collections.

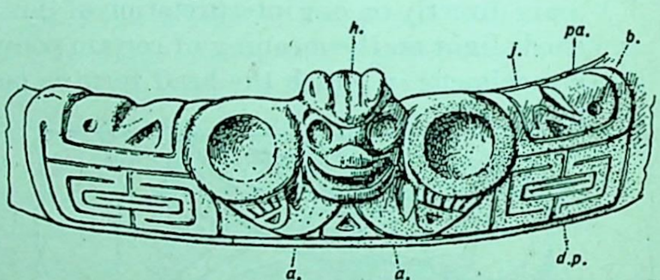


FIG. 38.—Panel of stone collar (Heye Museum).

The ornate design on the panel border of the Strube specimen in Bremen naturally next claims our attention. In considering this example (fig. 37) it will be noticed at once that the mouth, eyes, and all other parts of the face are reversed when compared with the head of the collar in the Heye collection (fig. 38). This is due to the fact that its left side represents the right side of the Heye collar, as will be seen when these collars are laid with the decorative panels uppermost for comparison, in which case the lower jaw in the former is naturally below, while in the latter it is above, a reversal caused by one of these collars being right-handed while the other is left-handed. This does not prevent a comparison of similar parts in the ornamentation of the collar, but it must be borne in mind that they are in reversed positions.

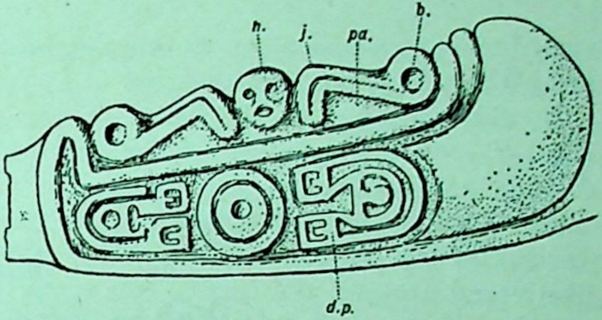


FIG. 39.—Panel of stone collar (Latimer collection).

We fail to discover on sides of the head of the Bremen collar any indication of those rings or ear ornaments in relief that are so conspicuous in the Heye Museum specimen. There are likewise no homologues of arms and hands below the chin, but the lateral figures carved in low relief on each side are represented in somewhat modified form. Here occur representations of a joint (*j*) and the terminal circle with a deep pit (*b*), leading us to consider them the same organs. The panel is distinct from its border and has no sign of legs.

Passing to a consideration of a collar figured by Prof. Mason and said to be from Guadeloupe, we discover on the decorated panel border a still greater simplification of the head which here (fig. 39) appears as a circle (*h*), with eyes and mouth represented by shallow pits. The problematical lateral organs (*pa*) have here become simple scrolls, with a pit (*b*) in the middle of the distal end, a conventionalization which is paralleled by that shown in another design on the panel margin of a collar from the Latimer collection figured by Mason,[59] where the lateral appendages (*pa*) are reduced to scrolls, although the joint is still angular.

A similar decorated panel is found in one of the collars of the Latimer collection (fig. 40).

[59] Op. cit.

We pass now in our comparison to a collar (fig. 41) in which the face on the panel border is divided medially into two parts, and the remainder of the figures, especially the lateral scrolls, have undergone a strange elongation. The simple pits representing eyes still remain, and each of the halves of the former head is continued into an extension curved into a scroll in which the only recognizable feature is the jointed organ.

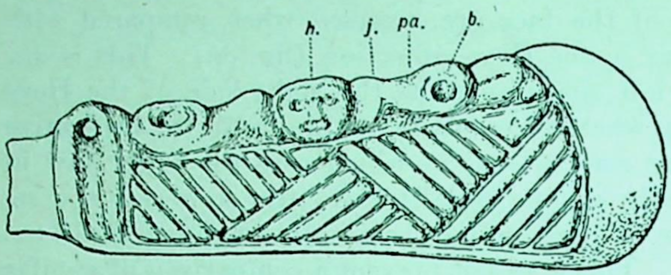


FIG. 40.—Panel of stone collar (Latimer collection).

Another variation in the figure on the decorated panel border (fig. 42) occurs in another of the Latimer collars. The vertical division between the eyes separating the face into halves has not extended wholly across the head, and the forehead here remains undivided. The scroll-like lateral appendages (*pa*) that make up the remainder of the figure of the decorated panel border have no exceptional features.

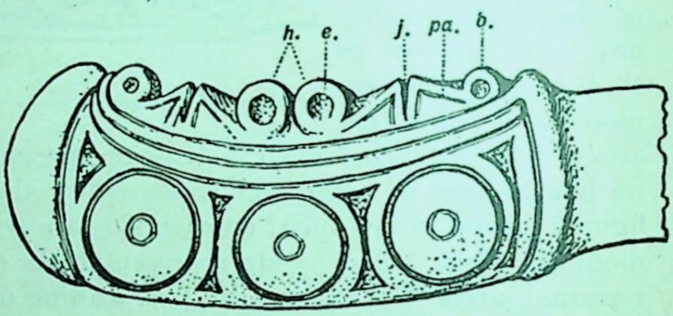


FIG. 41.—Panel of stone collar (Bremen Museum).

In still another collar of the Latimer collection, the conventionalization of the panel border figure has proceeded so far that the resemblance to a head with lateral appendages is completely lost. Here we have simply two scrolls with one extremity of each approximated and their distal ends widely separated and extended.

In another collar of the Latimer collection the decoration of the panel has been subjected to further modification in form, the panel figure taking the form of two rectangles representing the half-circles of the divided face, each bearing a pit representing an eye. The elbow-like scrolls are present with their terminal dots rising one on each side of the rectangle representing half of the face.

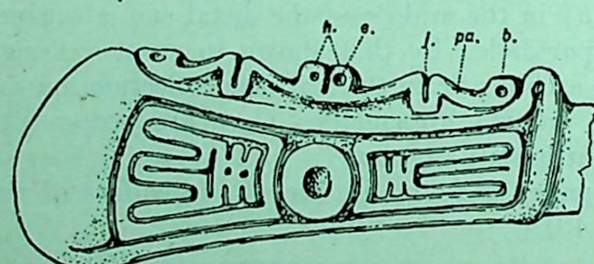


FIG. 42.—Panel of stone collar (Latimer collection).

Any resemblance of the panel decoration shown in figure 43 to a human head with lateral appendages has wholly vanished. Here the decorated panel border takes the form of a narrow rectangular figure with rounded ends, slightly curved upward and crossed at regular intervals by three pairs of bars. In each of the intervals there is a small pit, two of which (*e*, *e*) represent all that remains of the eyes, and two (*b*, *b*) those constants at the extremities of the scroll-like appendages that exist in the figure of the complicated panel border.

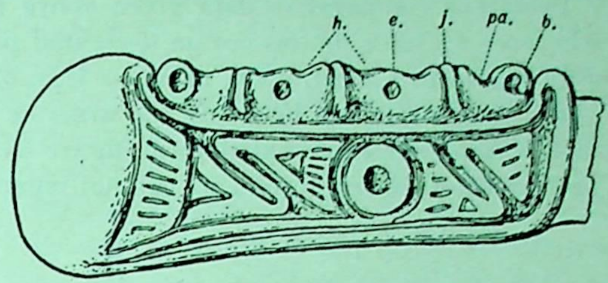


FIG. 43.—Panel of stone collar (Latimer collection).

There remain other designs on panel borders, one (fig. 44[60]) of a collar in the Trocadero Museum at Paris, and the other (fig. 45) in the Latimer collection. The outlines of these show important modifications, but these also in reality teach the same morphology as the preceding, viz, that figures on the decorated panel borders are simply highly conventionalized heads with extended lateral appendages.

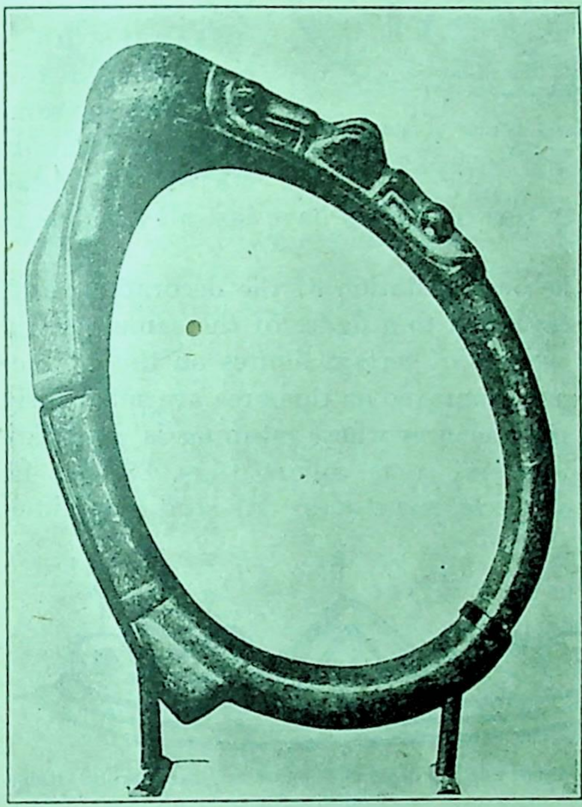


FIG. 44.—Stone collar showing unique decorated panel border (Trocadero Museum).

There is one feature lacking in the figures last mentioned that should be explained. Since the pits which represent the eyes, as we have pointed out, are here absent, it might be supposed that the conventionalized head is also wanting; but if we compare them with the underside of the figure cut in the panel of the Bremen collar (fig. 46), the reason for this lack is apparent. All of

[60] The author is indebted to Prof. M. H. Saville for this illustration.

these represent the underside of the lower jaw, not the upper part of the head where eyes, mouth, and nose are present.

From the comparative data given above we are able to say that wherever we have figures cut on decorated panel borders they probably represent a head, body, arms, or legs, often highly conventionalized and sometimes lost. As the arms or forelegs appear in the more completely represented form, figure 38, accompanied with the problematical lateral scrolls, we can not regard these scrolls as duplicate arms or fore limbs; if they are appendages they must be posterior limbs or legs. The posterior appendages in all these instances have been brought forward into the same plane as that in which the head and anterior legs lie, and by this contortion have lost all likeness to limbs.

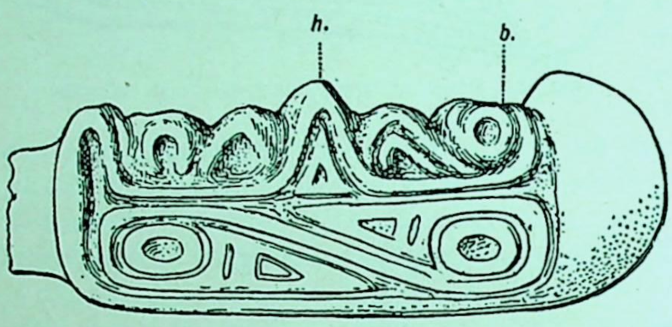


FIG. 45.—Decorated panel and panel border of stone collar (Latimer collection).

This interpretation of the ornamentation of the decorated panel border of the stone collar reduces it to a figure of the same general character, but it takes no account of certain figures on the surface of the panel itself. The figures engraved on this area are sufficiently distinctive to bear certain resemblances whose meaning is doubtful.

The decorated panels of several stone collars (figs. 39, 41, 42, 43) bear an incised ring or circle, sometimes with and sometimes without a central pit. On each side of this circle there are constantly represented well-made figures, of unknown significance, that have certain common resemblances in all specimens in which they occur. It may be assumed, but without positive proof, that these figures represent parts of the body; for example, the circle, which so often appears in Antillean art, represents the umbilicus, while the incised geometrical lines on each side of it resemble figures of legs or arms.

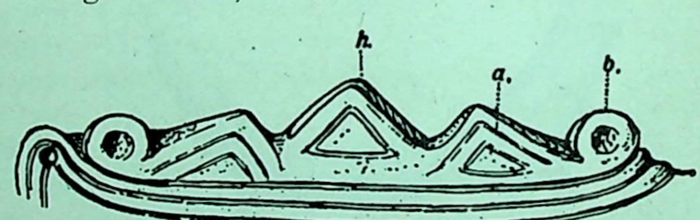


FIG. 46.—Underside of decorated panel of the Strube stone collar.

In several of the decorated panels we find this circle doubled; or these duplicated circles may be connected or modified in such a way as to appear as spirals;[61] or at times parallel lines may extend from the circles. The figures on the decorated panels of several collars consist of geometric parallel lines arranged in squares and chevrons, a form of decoration sometimes found on panels of massive collars. These are regarded as decorations of the body of the animal or the human form represented.

The main difference supposed to exist between the Bremen collar and other examples of its kind would seem to be the modification of the projection or knob into an animal head, and yet when we examine a series of collars we find several specimens in which the projection is carved in such a way as to suggest the conventional head of some animal.

Many massive stone collars[62] and some of the slender ovate[63] varieties have two "knobs," one of which projects on each side of a binding band or shoulder band filling the interval between them. In one instance the two ends are not united by a band but are hooked together.

No decorations appear in any of these double knobs, and all are without eyes or other indication of the presence of a head, which is likewise true of those examples in which the projections do not rise above the surface of the collar, although a remnant of the shoulder band[63a] may in these cases sometimes survive.

When the projection bears any design, it is commonly flattened, with a pit on each side. Another form of simple flattened knob, having circles on each side and parallel lines between them, is found on the second Bremen specimen. In an example in the Heye collection, where the projection is not very prominent, it is marked by a single transverse and several parallel grooves, recalling the parallel lines between the pits in an undescribed collar in the Bremen Museum.

The simplest interpretation of these variations in the so-called projection or knob of a stone collar would be that, like that of the Strube specimen, it represents a highly conventionalized head, and that the accompanying pits or circles are eyes.

Although several forms of stone collars have been added to those known to the author when he published his account of the Aborigines of Porto Rico, and one or two new theories concerning their use have

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[61] This form suggests the ornamentation of a fragment of a specimen of doubtful relation in the Stahl collection, now in the American Museum of Natural History, New York.

[62] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pls. lxiii, lxiv, lxv.

[63] Prehistoric Antiquities from the Antilles in the British Museum, Journ. Anthr. Institute, vol. xxxvii, pl. xl, 1907.

[63a] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxv, *f*.

been brought forward, we are still somewhat perplexed as to what may be regarded as their true use. A few of the more reasonable theories are mentioned below:

1. Insignia of office, worn on the person.
2. Sacrificial objects.
3. Idols for animal worship—serpents, lizards.
4. Idols for tree worship, especially yuca.
5. To assist childbirth—representations of female organ of generation.
6. Collar for men or women dragging canoes.

In the following pages the author will return to the interpretation of the Antillean stone collars in connection with elbow and three-pointed stones, but he will here state that he inclines to combine the third and fourth theories mentioned above as the nearest approach to a correct interpretation of the stone collars. The beneficent supernatural being of the Porto Ricans and Haitians was probably the Yuca god or the Sky supernatural who brought life to the food plant, yuca, and, as occurs on the neighboring continent, was represented by a mythic snake or dragon. Stone collars represent this god of serpent form but also with human features carved upon them. An undoubted serpent made of wood [63b] has the same form of head as the knob of the collar above figured.

ELBOW STONES

In an article entitled "Porto Rican Elbow Stones in the Heye Museum, with Discussion of Similar Objects Elsewhere,"[64] the author has published the following account of these instructive objects:

"Many prehistoric stone objects found in Porto Rico have taxed the ability of archeologists to explain and have furnished the theorist with abundant material for speculation. Among these may be mentioned three-pointed idols, both with and without animal or human heads. Other forms, from their resemblance to horse collars, have from the first been designated as collars or collar stones. Those prehistoric Porto Rican stone objects that, from their shape, are called elbow stones, are the least known and apparently one of the most enigmatical types.

"Elbow stones resemble, in general form, fragments of broken collars, but a detailed study of various elbow stones and comparison with stone collars, rather than bearing out this seeming resemblance, tends to show that they form types distinguished by highly specialized characters.

[63b] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. xc, *b*.

[64] American Anthropologist, n. s., vol. xv, pp. 435–459. Reprinted as Cont. Heye Mus., no. 4.

"The elbow stone type of objects is represented by 12 specimens in the archeological collections studied by the author. Objects of this type are therefore less numerous than the collars, of which there are about 100 in different collections. Elbow stones have not been found in Cuba, Jamaica, or the Lesser Antilles, and have never been reported from the American mainland. Their distribution in the West Indies corresponds closely with that of stone collars and three-pointed stones, which are practically confined to Porto Rico, Hispaniola (Haiti and Santo Domingo), and possibly eastern Cuba. The author is of course aware that stone collars and three-pointed stones have been recorded from certain of the Lesser Antilles, but their number, or rather their relative proportion to other prehistoric objects from the same islands, is so small that he is inclined to question the recorded provenance of these specimens. Thus the late Professor O. T. Mason described and figured a single collar in the Guesde collection from Guadeloupe, and M. Alphonse Pinart ascribed another specimen of this type to the same island. Among several hundred stone objects from St. Vincent the author has not seen a single collar or three-pointed stone, and he therefore reasonably suspects that the locality of the single broken fragment of the latter type ascribed to St. Vincent by Mr. Joyce is doubtful. It is the writer's belief that these objects are not indigenous to the Lesser Antilles. With a collar in the British Museum described by Joyce and said to have been found in St. Thomas, Danish West Indies, the case is somewhat different. St. Thomas, St. Croix, and neighboring islands belong to the same prehistoric culture area as Porto Rico, hence stone collars may rightly be expected in them; in fact, a fragment of a collar undoubtedly found in St. Croix is now in the Nordby collection at Christiansted, the chief city of that island.

"As the author intends to point out elsewhere that the localization of characteristic stone objects determines certain archeological areas, he will now only briefly mention the existence of several well-defined prehistoric Antillean culture areas. The majority of stone objects from the St. Vincent-Grenada area are radically different from those of St. Kitts, and these in turn differ from those of the Barbados area. Stone collars, elbow stones, and three-pointed stones are peculiar to the Porto Rico-Haiti culture area, and when found elsewhere in the West Indies are believed to have been introduced. * * *

"For convenience of study the two arms of an elbow stone [pl. 98, *B*] may be designated as right and left (*RA*, *LA*), and their point of junction the angle or elbow. One of the arms is either decorated or has a panel; the ends of both may be fluted, while their general form tapers more or less uniformly. One or both arms may have a groove on the outside called the sulcus (*s*), which, when situated on the paneled arm, extends lengthwise from the panel border to

the end of the arm. A cross section of an elbow stone near the boss following the elbow band is, as a rule, about the same as that near the pointed pole of an ovate slender collar. The surface of an elbow stone, especially the boss, is generally rough, but several examples have the remaining parts finely polished.

"So close are the general likenesses between the boss and the arms or shoulders of collars and elbow stones that an identification of the latter with broken collars is most natural. In order to explain minor differences in the two types, it is held by some of those who entertain this opinion that a broken collar has been subsequently fashioned into an elbow stone and its surface redecorated to fit it for secondary use. So radically different, however, are the carvings and symbols on the surfaces of these two types of objects that this conclusion seems unreasonable.

"Other archeologists believe that the elbow stone is a fragment of a type of collar differently ornamented from any that have been found entire. The resemblances are believed by them to be close enough to indicate identity and the differences are looked upon as special rather than as general characters.

"The belief that the elbow stone belongs to a distinct type is far from the thought that there is any utilitarian difference between the two classes of objects. All indications tend to show a like use, and that if we could satisfactorily explain the meaning of one type we should be in a fair way to interpret the other. It is, in fact, primarily to shed some light on the significance of the stone collar that the author presents the following results of his comparative studies:

"Elbow stones, like stone collars, may be divided into right-handed and left-handed, or right-armed and left-armed, according to the position of the decorated arm. When an elbow stone is placed so that the panel will show, this feature will be seen either on the right or the left hand, thus determining the designations 'right-handed' and 'left-handed' elbow stones. The significance of the difference in this feature is not known; it may mean nothing, but it would appear that its very occurrence in both collars and elbow stones has some important bearing on the function of the objects.

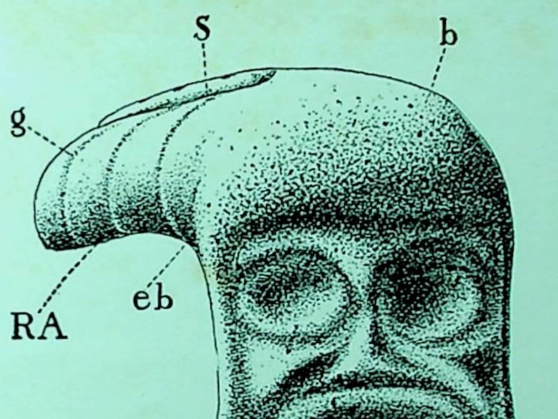
"The style of ornamentation furnishes data for a classification of elbow stones on other grounds. Two distinct varieties of these objects can be readily recognized accordingly as a head, face, or body is sculptured on the outer surface of one of the arms. This sculpture, when it appears, is generally in low relief, and always represents human features, never those of an animal. In elbow stones on which such a sculptured figure does not appear there is always a panel with a shallow, oval, concave pit hollowed in the middle, in which is sometimes a secondary depression, as shown in figure 36 [see pl. 99, *B*]. The arm bearing this panel with its pit cor-



A



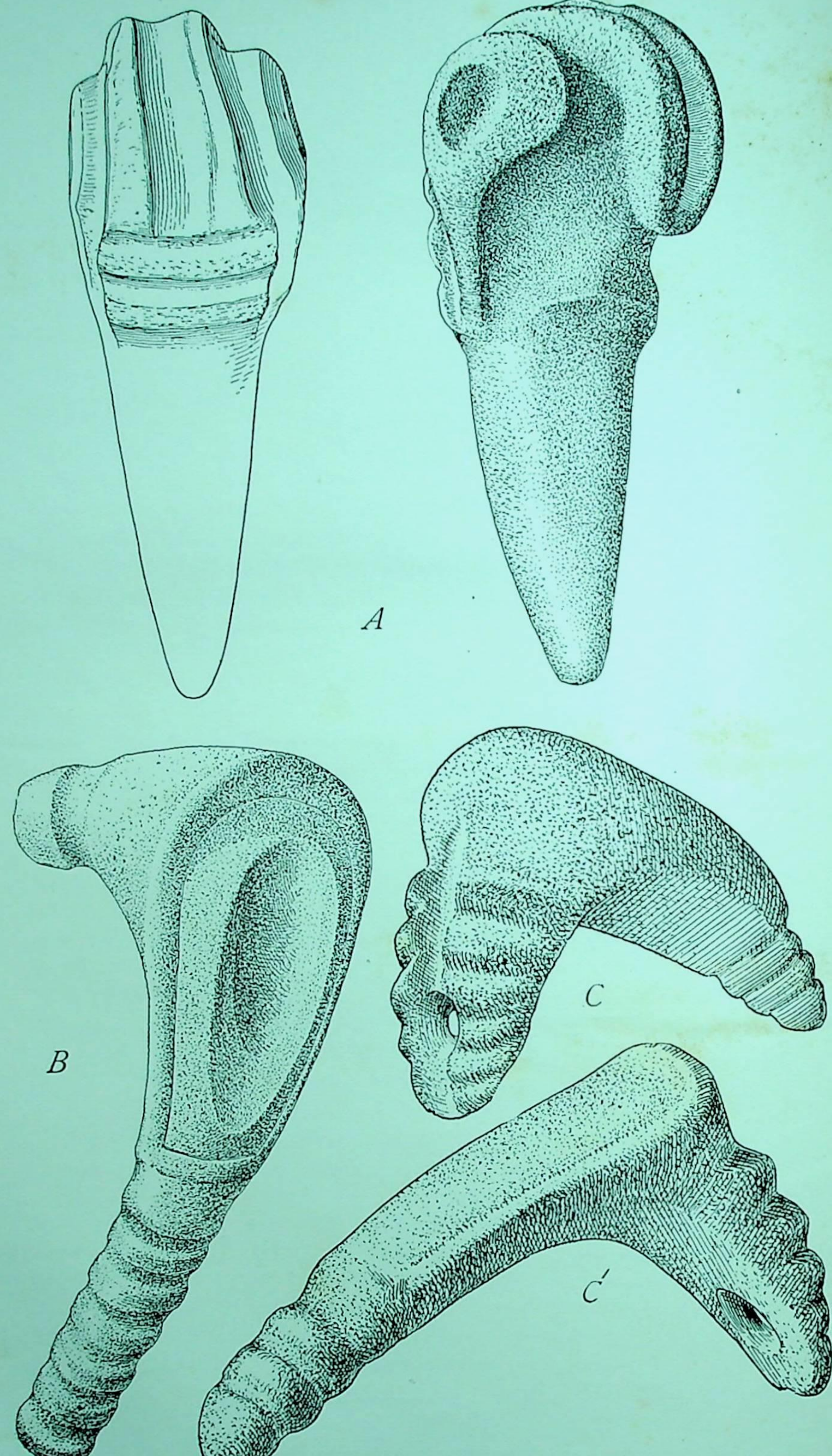
A[1]



B

ELBOW STONES, PORTO RICO

A, 5.25 inches; *B*, 9.63 inches.



ELBOW STONES, LESSER ANTILLES, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

A, 6.8 inches; *C*, *C'*, 8 inches.

responds with that on which, in decorated elbow stones, is cut a human head or body. A homologue of this plain panel (identical with the undecorated panel of a stone collar) does not occur on those elbow stones in which carved heads or faces are found; consequently it is supposed that the decorated panel of the stone collar is not represented by a sculptured head in elbow stones.

"In those specimens of elbow stones in which a face is sculptured on one arm it will be noticed that the middle line of the face or head is placed longitudinally and not transversely to the axis—always lengthwise of the arm, never crossing it. The position of these figures on known elbow stones differs radically from that of the heads on panels of stone collars, for in the latter the middle line of the face is at right angles to the panel. The figure on a collar is situated generally on the border of the decorated panel, and is small and in low relief; but in an undescribed collar in the Heye Museum [pl. 95], which is unique in this respect, the head rises above the surface. An examination of this collar shows that in general form it belongs to the massive stone collar group, while the decoration is more like that of the slender oval collar; but the head cut on the panel is so different from any yet described that it can hardly be assigned to the latter group. It is therefore regarded as a connecting form having affinities with both massive and slender oval collar stones.

"It is instructive and may be significant that the faces on all the elbow stones are anthropoid; and the same is true also of the stone collars, the heads on all of which have human features. The symbolism of the spirit depicted represents a human, not an animal, zemi.

"Description of Elbow Stones

"The following classification includes the known elbow stones in various collections, designated by the name of the owner, the collector, or the museum in which they are deposited:

"*A. With face cut in relief on one arm*

a. Face on the right arm.
   1. Madrid specimen (fig. 48).
   2. Heye Museum specimen (pl. 98, *A*).
   3. Latimer specimen, National Museum (fig. 49).
b. Face on the left arm.
   1. American Museum specimen.
   2. American Museum specimen.
   3. Pinart specimen.
   4. Heye Museum specimen (pl. 98, *B*).

"*B. Arm without face, but with panel*

a. Panel on the right arm.
   1. American Museum specimen.
   2. American Museum specimen.
   3. American Museum specimen.
   4. National Museum specimen (fig. 47).
b. Panel on the left arm.
   1. Heye Museum specimen (pl. 99, *B*).

"*C. Elbow stone of doubtful type*

"A. WITH FACE CUT IN RELIEF ON ONE ARM

"*a. Face on the right arm*

"1. *Madrid specimen.*—The most perfect and elaborately decorated of all these objects is an elbow stone in the Museo Arqueologico of

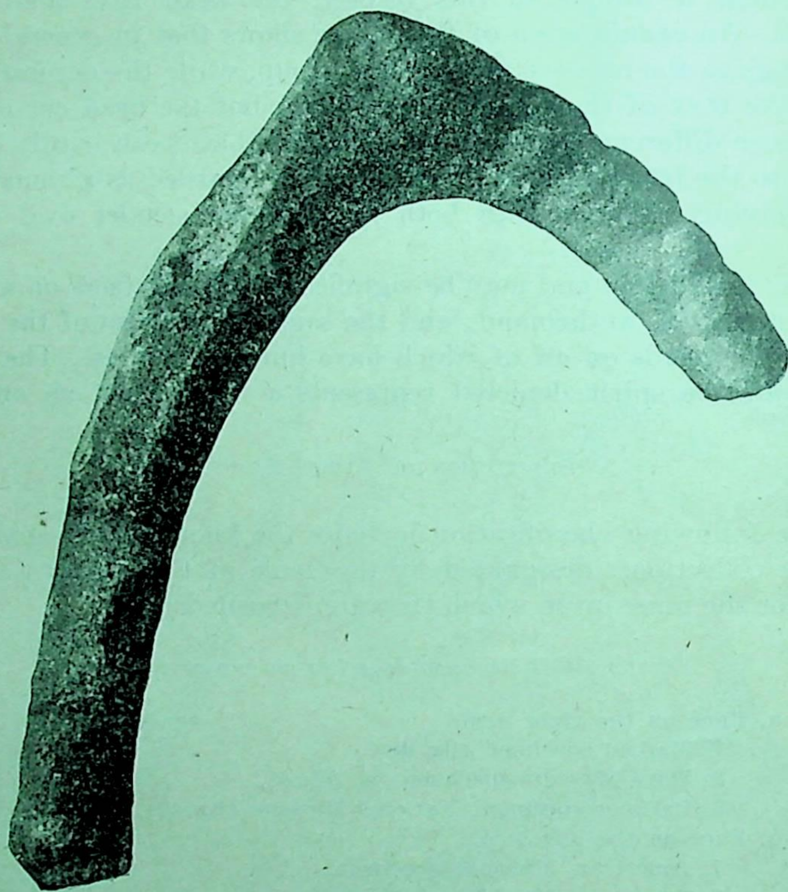


FIG. 47.—Elbow-stone in the United States National Museum

Madrid, which has face, arms, and legs sculptured on one arm. This specimen has been figured by Neumann and several other writers, but

as it is almost unknown to archeologists a new illustration [fig. 48] indicating the variations in the decorations of these objects, is here introduced.

"From an inspection of the figure it appears that both arms of this beautiful specimen, unlike those of most elbow stones, are unbroken. The right arm shows the longitudinal groove (sulcus) common to these objects, extending from the lower margin of the panel to the extremity of the arm. The surface is almost wholly occupied by the figure sculptured upon it, the head, arms, legs, and horseshoe-shaped headband or fillet being in relief. This fillet, which is of about the same breadth throughout, is decorated with a number of incised pits, one of which is placed medially over the forehead. The fillet ends on each side of the face, near the cheeks, where there are depressions apparently representing ears. This headband recalls those found on heads of three-pointed stones, with which it is seemingly homologous. The two ends of the fillet merge into the shoulders of the figure and continue to form the arms. The forearms are folded on the breast, as is common in Antillean objects of art in stone and shell, and the fingers are rudely represented by grooves. Near the wrists, a short distance from the fingers, there is a slight projection on each arm, which recalls the protuberances commonly represented on the ankles of Antillean figures. Relatively the body is abnormally small or inadequately represented, the space between chin and legs being so restricted that not even the umbilicus, so constantly found in stone images from Porto Rico, is represented. The soles of the feet are turned upward in an extraordinary way and the toes are folded back, a common feature in Antillean idols. The mouth is large, nose broad, cheeks prominent, the whole recalling faces on three-pointed stones.

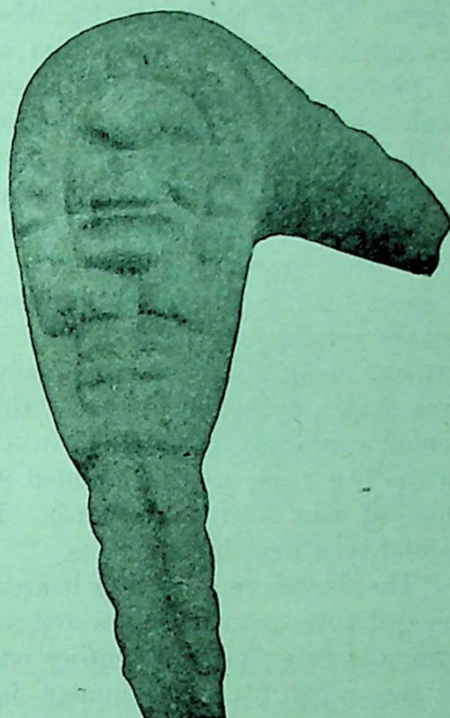


Fig. 48.—Elbow-stone, Madrid Museum. (12.62 inches.)

"2. *Heye Museum specimen.*—The second specimen of elbow stone (pl. 98, *A*, *A′*) with a face on the right arm is less elaborately sculptured than the Madrid example, the arms and body not being represented. The right limb is apparently broken off just below

the carved face, so that there is nothing on this arm corresponding to a ferruled end. On the forehead of the figure may be seen a triangular area in which is a central pit. The head is fringed by a fillet less elaborately made than that of the Madrid specimen. The end of the small arm appears to have been broken, there being no sign of fluting, although it shows indications of a sulcus. On the outer side of the small arm, near the angle, there are two series of parallel lines, or chevrons, cut in the surface, recalling the decoration of a massive collar elsewhere figured.

"In order to compare this elbow stone with certain stone heads figured by the author in his Aborigines of Porto Rico (pls. LI, LII, LIII), we may suppose that the two arms are much reduced in length, as in plate LII here referred to, and the face cut in high relief instead of being low or flat. A still further reduction in the homologues of the arms appears in certain stone heads and in stone disks with faces illustrated in the plates mentioned, in some instances all traces of the arms having disappeared. The stone head shown in plate LIV, *a*, *a′* has the neck developed into a short handle, giving the appearance of a baton and recalling certain ceremonial celts. The objects called 'stone heads' in the author's work above cited so closely resemble three-pointed stones that they may be allied to the third type of zemis, in which the conoid projection is modified into a head. A like parallel occurs in the first type of three-pointed stones, the heads of which recall those of men, lizards, and birds. The few known specimens of the second type have human faces.

"The figures representing lizards in both the first and the third type of three-pointed stones are characterized by elongated snouts, eyes, and two pits, representing nostrils, placed near the extremity of the upper lip. The human faces of the first type generally have the ornamented fillet reaching from ear to ear, which is never represented in reptilian three-pointed stones of the first type, but is present in reptile figures in the third type. Ears appear in human but never in bird or reptilian forms. In place of a depression or pit in the median line of the headband, the reptilian figures of the third type have a device consisting of a low convex projection and pit of the first form. This last-mentioned feature is sometimes situated in a fold extending downward over the forehead, suggesting a frontal ornament.

"3. *Latimer specimen.*—This elbow stone [fig. 49] was first figured by Prof. O. T. Mason, who regarded it as a part of a collar, and afterwards by the author, who founded the type now known as elbow stones upon its characteristics. Although the form of the Latimer elbow stone is somewhat aberrant in several particulars, it presents the distinctive features of the type. Its arms are ap-

parently unbroken at their extremities, and the face is cut on the right limb. Instead of the encircling grooves on the arm bearing the face, the arm is perforated near its end, where it is crossed by a single transverse groove supposed to serve the same purpose as the grooves in the fluted specimens above considered; in other words, for attachment to a staff or some other object. The oval face, eyes, nose, and mouth are typical of Antillean art. The headband has a pit medially placed above the forehead and is ornamented by a series of parallel incised lines. The slightly protruding ears at the termini of the headband have large circular pits. The shorter arm has a shallow longitudinal groove (sulcus?) and obscure elbow band.

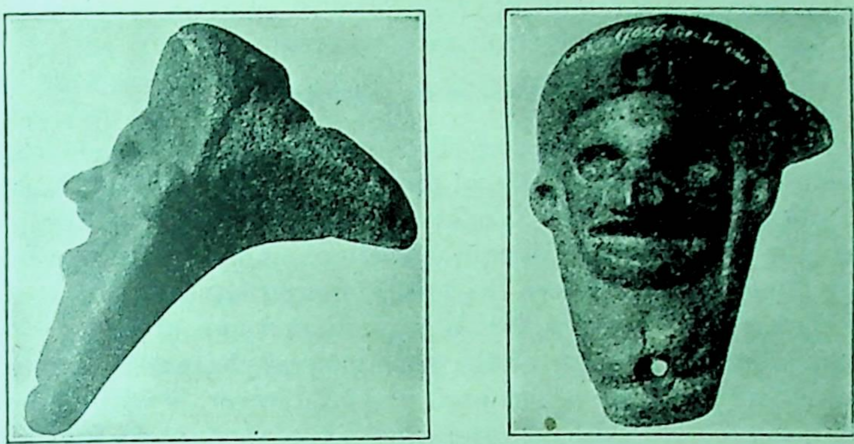


FIG. 49.—Elbow-stone in the Latimer collection. Side and front views. (Length 7¾ inches.)

"*b. Face on the left arm*

"1. *American Museum specimen.*—Among the elbow stones in the American Museum of Natural History there is an instructive specimen in which an arm is ornamented with a human face in relief, portions of the body, and anterior appendages; the legs are drawn together and merge into a beaded end with longitudinal sulcus and accompanying encircling grooves. The face sculptured on this specimen is oval, the cheeks are prominent, the eyes and mouth circular. The ear pits are prominent, and the fillet or headband bears a medial circular protuberance with its accompanying pit. The arms are bent; the legs are separated above by a space in which is a triangular depression. The umbilicus is indicated by a circular design. The shorter arm is girt by parallel grooves and tapers to a rounded extremity.

"2. *American Museum specimen.*—In the same museum there is a second specimen of elbow stone, on the left arm of which is carved a rude face. This example is broken on one edge. It has no grooved

arms, but in place of them is a perforation near the end of one arm, as in the Latimer specimen. The sulcus is absent.

"3. *Pinart specimen.*—The Pinart elbow stone, said to have been at one time in the Trocadero Museum, Paris, belongs to that group in which the left arm is the larger and bears an oval face, which has large open mouth, prominent ears, and headband, with a circular pit over the forehead. Representations of arms, legs, and umbilicus are present; the legs are separated by a triangular depression as in a former specimen. In the figure given by Pinart there are indications of the grooves or furrows of the terminal ends of both arms, but as his illustration is imperfect this feature is difficult to determine satisfactorily.

"B. ARM WITHOUT FACE, BUT WITH PANEL

"*a. Panel on the right arm*

"There are five specimens of elbow stones with flat panels instead of figures on the arms. Three of these are in the American Museum of Natural History, New York; a single specimen of the same type is in the National Museum collection; and there is one in the Heye Museum. All, except the last, are right-handed.

"These objects are simpler in form than those of the previous group, otherwise they are of the same general character. Each has a sulcus on the surface of one arm, which, however, is without encircling arm grooves. Although the panel pit, a constant feature of the panel, is about uniform in position, it varies in shape and size in the several specimens. From its general shape and simplicity it would appear that the panel in these specimens served as a base to which another object, possibly a stone head, was attached.

"The specimen in the National Museum is said to have been collected at Vieques Island, a new locality from which elbow stones have been recorded. The paneled arm of this specimen is long and slender, the other limb short and grooved, but with a well-marked sulcus not shown in the figure.

"*b. Panel on the left arm*

"1. *Heye Museum specimen.*—The left-handed elbow stone [pl. 99, *B*] in the Heye Museum is a fine specimen, surpassing the others of the same group in form and superficial polish. Its left arm ends in a series of fluted joints, but is without a sulcus; the right arm is short, with an encircling groove. The panel is almost wholly occupied by an elongate oval depression, in which is a second oval pit, the surfaces of both of which are smooth. The panel is surrounded by a polished border slightly raised and evenly rounded.

"C. ELBOW STONE OF DOUBTFUL TYPE

"There are one or two aberrant specimens that are doubtfully identified as elbow stones. In discussing the Guesde collection Prof. Mason figured and described an unusual object from Punto Duo (?), allied to elbow stones but of highly aberrant form, as follows:

"'Fig. 195. An ornamental piece, of bluish green color. It is rare in form, but not absolutely unique. In the American Museum at New York is a similar specimen. The chamfering and fluting are gracefully blended. The left-hand extremity is perforated for suspension. Length of long limb, 8 inches; of short limb, 5 6/10 inches.'

"The differences between this specimen [pl. 99, *C*, *C′*] and the typical elbow stones lie mainly in the 'chamfering,' nevertheless it shows certain characters peculiar to elbow stones. The 'similar specimen' in the American Museum, referred to by Mason, is possibly one of those above mentioned under group B.

"The Guesde stone is exceptional in several particulars. The figure shows no indication of a panel or a head, and the sulcus likewise is missing. On account of the absence of the panel it is difficult to tell whether it belongs to the right-arm or the left-arm group. The fluting on the longer arm reminds one of the specimen in the National Museum at Washington, and the perforated shorter arm is like that of the Latimer specimen. The grooves of the smaller arm extend halfway round the arm, while those of the longer arm girt it entirely.

"MORPHOLOGY AND INTERPRETATION

"The many similarities between three-pointed zemis, elbow stones, and stone collars would seem to indicate a corresponding similarity in use, consequently any light on the morphology of one would aid in the interpretation of the other types. The author believes that the life figures on these three types of objects are symbolic representations of zemis, or spirits, which were worshiped by the prehistoric Porto Ricans. They were idols, and bore the name of the particular spirit represented (as well as the general designation 'zemi')—a usage common to primitive religions.

"A consideration of the differences in form, or the morphology, of these objects is desirable before the many theories as to their use can be intelligently discussed.

"A forward step in the interpretation of the morphology of stone collars was taken by Mr. Josiah Cato and later by Prof. Mason, who recognized that the 'shoulder ridge' faintly resembles a lashing of the two ends of a hoop.

"An important suggestion has been made by Mr. T. A. Joyce [64a] that the Antillean stone collar is a copy of an archaic zemi made of

[64a] Prehistoric Antiquities from the Antilles, in the British Museum, Jour. Royal Anthr. Institute, vol. XXXVII, pp. 402–419, pl. XLVIII–LVI, 1907.

branches of a tree bent into a hoop and fastened at their ends. He was the first to associate the stone collar with 'tree worship'—an important advance in the solution of the enigma. Mr. Joyce described a stone collar in the British Museum in which there is no shoulder ridge, but what appear to be the two ends of branches 'overlapped' and 'hooked together' at the point where the shoulder ridge ordinarily is found. This led him to suggest that in studying a stone collar we must 'retranslate' it to its wooden prototype, and recognize that the juncture of the ends in this case, and perhaps in all, was effected as follows: 'When the limbs of the fork [of a tree] were trimmed, the stump of a small subsidiary branch growing in a convenient position toward the end of each, was left projecting; the longer limb was bent round, and the projection toward its termination was hooked round the projection on the shorter limb; the addition of a cotton bandage would hide the joint and make all secure' (p. 410).

"'It is perfectly obvious,' Mr. Joyce says, 'that these collars were constructed originally of wood. A young tree was selected and cut off immediately below a fork; the two ends of the fork were trimmed into unequal lengths, the longer bent round so as to overlap the shorter, and the two fastened together by a band of cotton smilar to the leg bandages worn by the natives.' He also states (p. 410): 'Starting with the supposition that they were originally constructed of wood (which seems to me to be almost certain), it seems possible that a clew might be found in the prevalence of tree worship in the Antilles.'

"'The heavy collars,' continues Mr. Joyce, 'which appear to have been formed of a single and comparatively stout stem bent into a hoop and the ends secured by a bandage may represent a *zemi* made originally from the straight trunk of a tree without a fork.' Thus a second and important step in the interpretation of the meaning of the collar was taken by Joyce in the recognition of the collar as a zemi connected with tree worship, its original prototype being made of wood, the stone form being a more lasting one, but one in which certain characters of the wooden or archaic form still persisted.

"In Ramon Pane's account of how Antillean wooden zemis were made, as directed by a tree spirit, we have evidence of tree worship in Haiti; but the testimony afforded by this account is too meager to prove that when the tree referred to by the Catalan father was felled it was made into the form of a collar. The author suspects that the idol referred to by Ramon Pane represented the Yuca Spirit,[65] but this suspicion is still subject to proof.

[65] The Yuca spirit or Yocahu (Yocabana) Maorocon, Mabouya, Huracan, or Great Serpent, whose idol Maroio was one of the two stone images in the Cave of the Sun, worshipped for rain and blessings.

"In Antillean, as in other tree worship, it was the spirit of the tree that was the object of adoration, and that worship was more or less connected with the material benefits desired—generally the food that the tree yielded. The deity that controlled the manioc (yuca), or the Yuca Spirit, *Yucayu*, was worshipped for temporal benefits, the wooden idol being the visible, material symbol.

"In differentiating the elbow stone from the collar as a distinct type, it has been shown above that the position of the heads of both relative to the axis does not coincide, since one is transverse to the axis, the other longitudinal. In one case the object must be placed vertically, in the other horizontally, in order to bring the face into a normal position—a difference in position that remains to be satisfactorily explained. If, however, the elbow stone was carried, it may be that one arm only of the elbow stone was attached to a staff and the object carried upright, while the collar was laid horizontally when in use, bringing the head into the same relative position.

"It is evident that the furrow, or sulcus (*s*), is an important feature in the morphology of elbow stones. This groove, nonexistent in the collars, may have been cut in the surface of the elbow stone for the insertion of a rod or staff, to which it may have been lashed with cords held in place by the grooves girdling the arm. It is not always limited to one arm, but is sometimes found on both arms, and it would appear that occasionally either two sticks were attached to the stone, one at each end, or the two ends of the same stick were bound to the arms, in which latter case the stick would have to be bent into a hoop resembling in shape a stone collar, part wood, part stone, the elbow being of the latter material.

"The attachment of an elbow stone to a rod or staff was probably by means of vegetal fibers. In some instances this was unnecessary, since there was sometimes a depression in the end of each arm, as in an elbow stone reputed to be owned by Señor Balbas, of Porto Rico, to which reference has been made elsewhere, but which the author has not examined. In this case it appears as if there are depressions in which the sticks were possibly inserted, rather than lashed to the stone.

"The theory that the extremity of a staff was laid in the sulcus and lashed to the elbow stone would preserve the normal position of the face carved on the panel if held vertically. If carried by means of this staff, the face cut on the arm would be upright or in a natural position. Some of the elbow stones may have been carried in the hand without an attached staff, thus accounting for the absence of a sulcus. * * *

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"CEREMONIAL BATONS OF STONE

"An examination of certain celts, clubs, and other stone artifacts leads to the belief that the prehistoric Antilleans had many kinds of objects which they carried in their hands on ceremonial or other occasions. Several of the almond-shaped or petaloid celts with heads or human figures cut on the sides have their pointed ends prolonged into a handle, and even those without such a prolongation can hardly be supposed to have been hafted, as in such a case much of the design cut upon them would have been concealed. Many of the beautiful axes for which the island of St. Vincent is famous were too bulky to be carried in war and too dull to be used as cutting implements. They may have been carried by chiefs on ceremonial occasions as badges or insignia of office.

"A remarkable stone object [pl. 99, *A*] in the Heye collection has the appearance of having been used as a baton, but its form is different from that of any yet described, and would suggest that it was carried in the hand, but it may have been inserted into a wooden staff. One end of this object is enlarged, with the surface cut into a definite form, while the other end tapers uniformly, providing the handle, possibly for attachment to a rod. The figure on the larger end has a median crest or ridge extending over the extremity, on each side of which is a prominence, the arrangement recalling the crest and eyes of some highly conventionalized animal. The crest or ridge is found on examination to be double and to extend round the larger end, the two parts coalescing at one end and uniting by a transverse band on the other. On the sides of this median crest are the protuberances, each with a circular pit and extension from the margin. The only object known to the writer that approaches in form the stone referred to is one made of burnt clay found in Barbados, many miles away. This specimen also has an enlargement representing a head at one end and tapers uniformly to the other extremity in the form of a handle. The Barbados object also has a crest extending along the middle of the enlarged part and ending abruptly near a hole which may be likened to a mouth; on each side of this elevation there are pits that may be regarded as eyes. The ridge or crest suggests a distorted nose, or the beak of a bird, a suggestion that would seem to comport with the parts on the enlarged end of the stone baton above described. The double median fold and lateral elevations with pits represent beak and eyes."

Another stone object (pl. 100, *A*, *B*) from Guadeloupe, described by Prof. Mason, evidently belongs to the same type as the stone ceremonial baton, or some form of badge mounted on a staff.

The stone object (pl. 100, *C*, *D*) shown from side and top reminds one of the bird-shaped ceremonial baton. This object was evidently so fashioned as to be held in the hand by the pointed end, the carved portion being held aloft. Its shape is similar to the bird-formed baton from Arecibo, Porto Rico, above mentioned. The Heye specimen is distinguished from the latter by a double row of rounded projections, regularly arranged one row on each side of a median groove, running along the enlarged end of the baton. It is probable that it was carried in the hand. The specimen is 6½ inches long by 4 inches wide at its broadest end, tapering to a point at the opposite extremity.

Elongated stone ceremonial batons with figures cut on one end and enlargements at the other have been reported from several West Indian islands, but the author knows no specimen of quite the same form as that figured in plate 100, *C*, *D*.

THREE-POINTED STONES

The group of stone objects known as three-pointed stones, also called zemis and mammiform stones, is confined to Porto Rico and Santo Domingo. These objects may be divided into the following groups: (1) Those with head on the anterior end; (2) those with head on the anterior side of the conoid projection; (3) those with conoid projection modified into a head; (4) those without head or face cut upon them.[66] The Heye collection contains one specimen with features of both the first and second groups, and one referred to the fourth group, which in place of an engraved head has an incised circle on both anterior and posterior ends.

First Type of Three-pointed Stones

It is possible to still further divide the first group of three-pointed stones into four subdivisions: (1) Those with human heads (fig. 50); (2) those with reptilian or mammalian heads; (3) those with bird heads; (4) heads of nondescript animals. A single specimen of the first subgroup has a head on the posterior as well as the anterior end, but as a rule the posterior end of stones of this type has a pair of limbs cut upon it. A specimen (pl. 101, *A*) from the Heye Museum has a superficial feature on the cone, hitherto undescribed. Two circular pits or depressions occur on each side of this projection, each surrounded on the lower half by an incised line, which is connected by an incised line with the edge of the base.[67]

[66] An aberrant form of the fourth subgroup occurs also in the St. Vincent-Grenada region, but with this exception—three-pointed stone idols are not found outside the Santo Domingo-Porto Rico area.

[67] A similar pair of pits is figured in another specimen in Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pls. XXXVII, a; XXXIX, c; XLI, b; and XLIII, c.

A second specimen (pl. 101, *B*) in the Heye Museum is closely allied to that group of three-pointed stones with a representation of a human head on the anterior end, and shows a pair of pits on each side of the middle line of the conoid projection near the apex. These pits, unlike those of the last specimen, are without encircling lines, and are destitute of the lines on the side of the specimen, plate 101, *A*. The mouth is represented widely opened, recalling that of a fish. The form of the legs is quite exceptional, being unlike those of the majority of three-pointed stones of the subgroup to which it belongs.

The specimen (pl. 101, *C*) belongs to the same group as those already considered, but differs from them in wanting two pits on the side of the conoid projection; the ear is rudely engraved, lips not being well represented. Its legs are drawn up; eyes barely outlined. The frontal fillet on the forehead is smooth and undecorated.

This specimen (pl. 101, *D*) in the Museum für Völkerkunde in Berlin, has the typical human form of a three-pointed stone of the first type. The frontal fillet is not clearly indicated, and the legs or posterior appendages are rudely cut. The apex of the conical projection leans slightly forward, the body being short and thick.

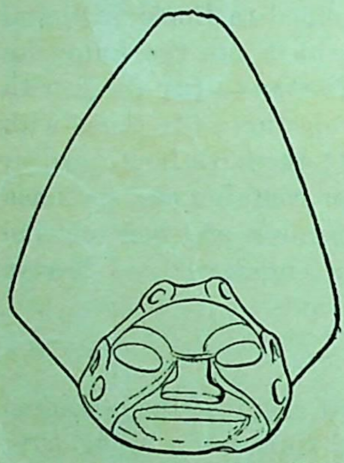
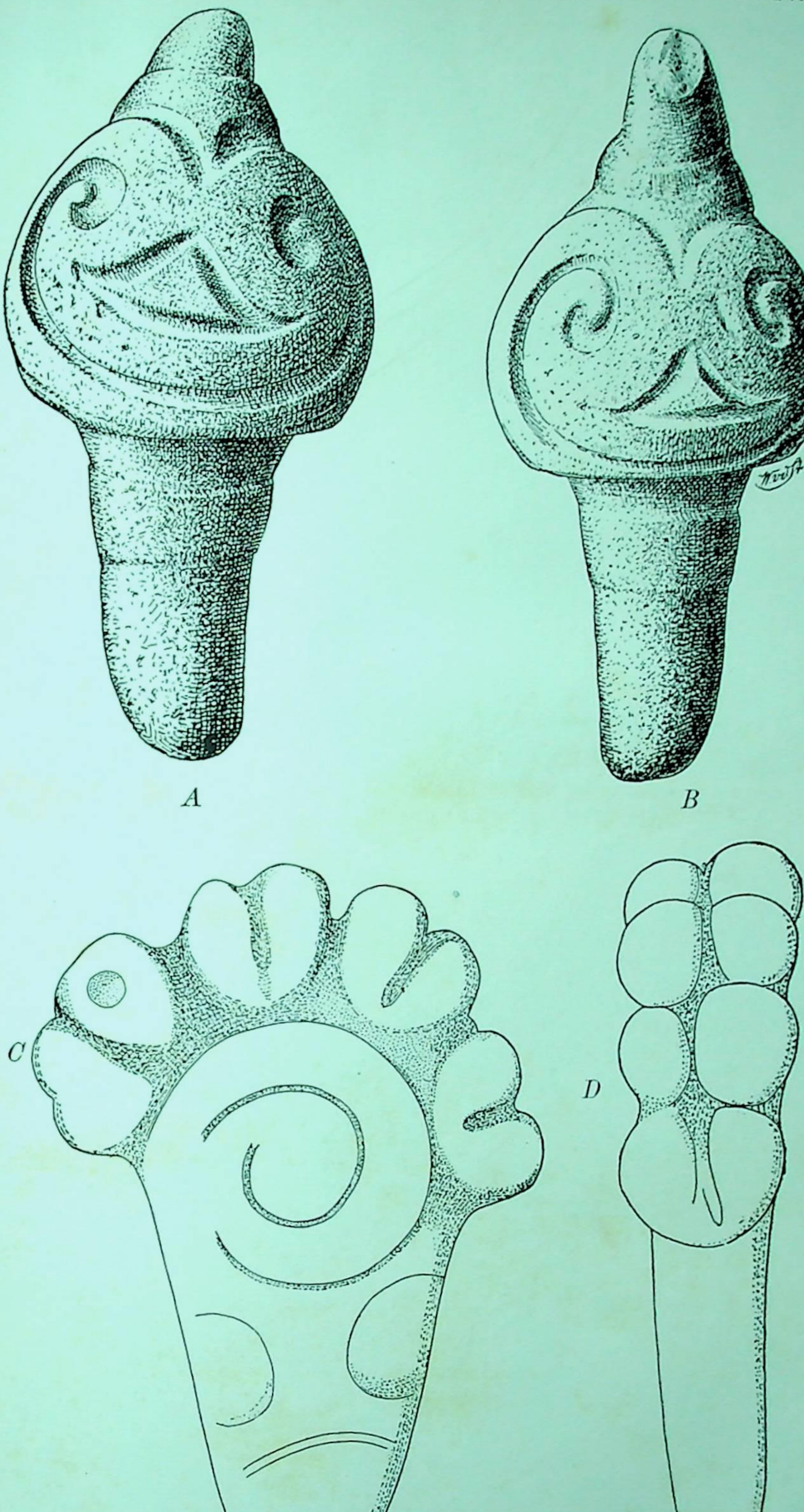


FIG. 50.—Three-pointed stone, first type.

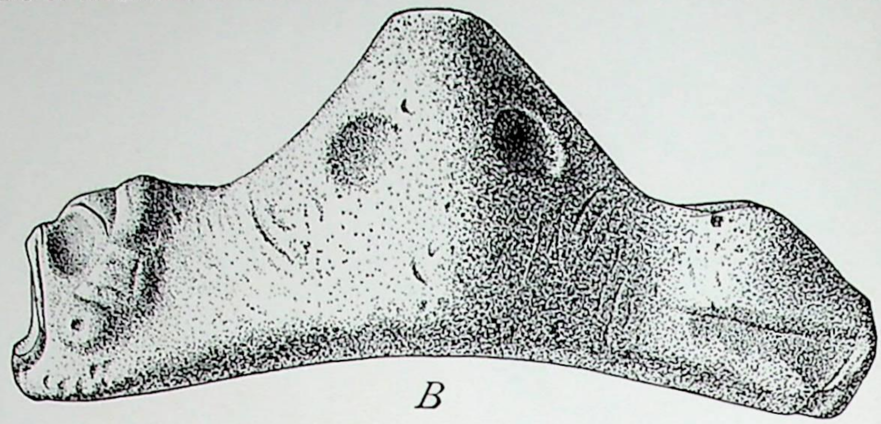
The specimen (pl. 102, *A*) differs from all others thus far considered in the form of its posterior appendages, which are folded backward and notched at the ends. The frontal fillet is not differentiated from the eyebrows, the nose being somewhat broken and the ears being obscurely represented. The form of the head separates this specimen from any in the group of three-pointed stones with human heads to which it belongs. It is rudely carved, its legs being in low relief and the ears not even indicated. This specimen has the appearance of never having been finished, notwithstanding which it shows unmistakably marked features of the first group.

A three-pointed stone shown in plate 102, *B*, has its mouth wide open, like one of the specimens above represented. The body is very long as compared with its height, and the apex of the conical projection does not bend forward. The head suggests a human being, its fillet being without engraved decoration. The ears are indicated by incised circles and triangles.

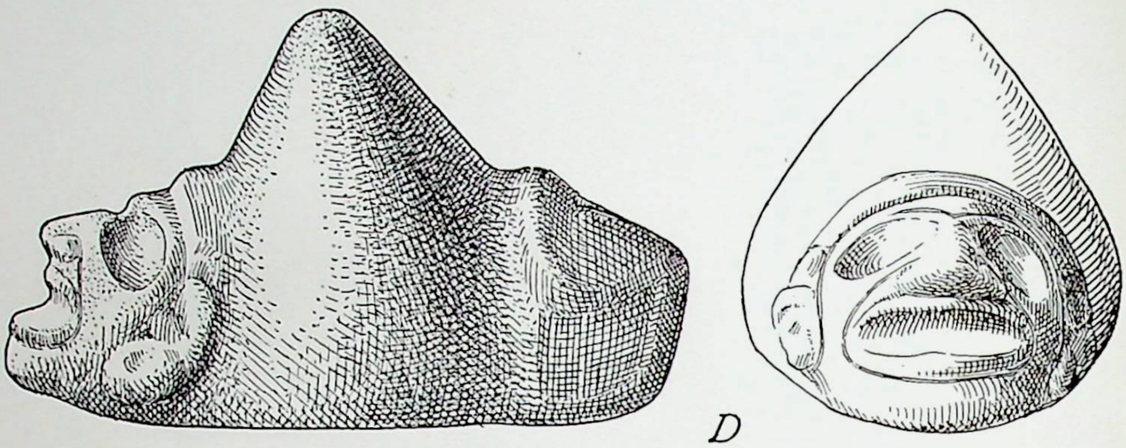


UNIDENTIFIED STONE OBJECTS, GUADELOUPE (GUESDE COLLECTION, BERLIN MUSEUM)

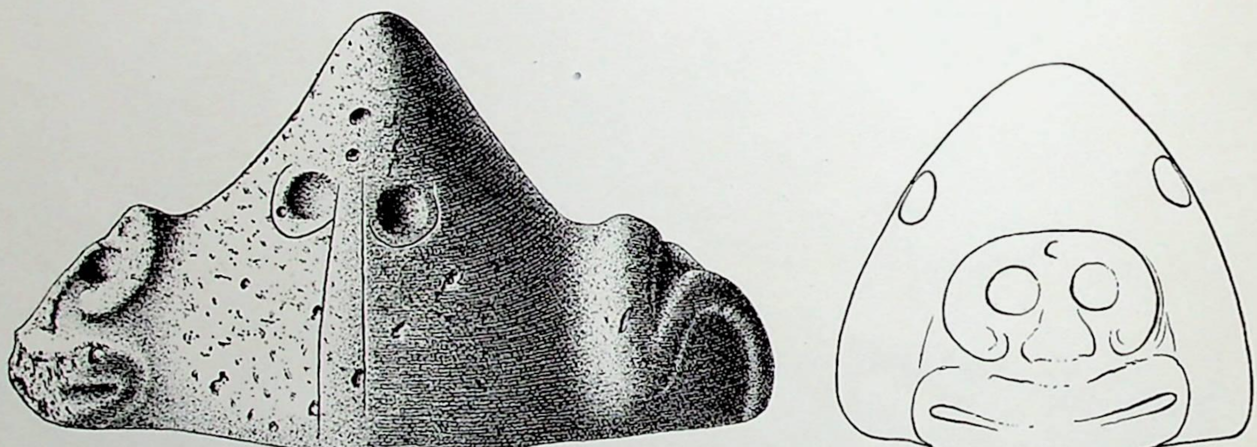
A, *B*, 11.5 inches; *C*, *D*, 6.5 inches.



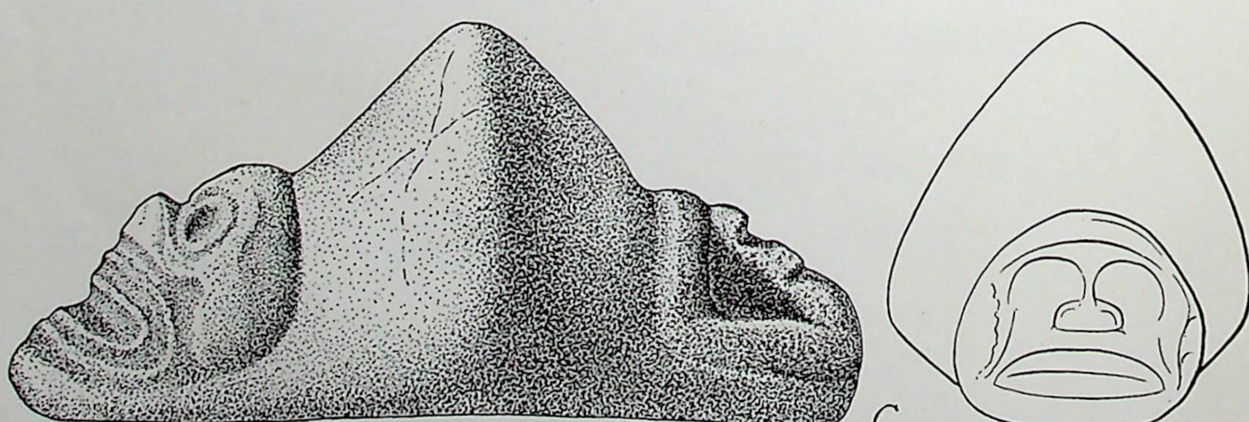
B



D



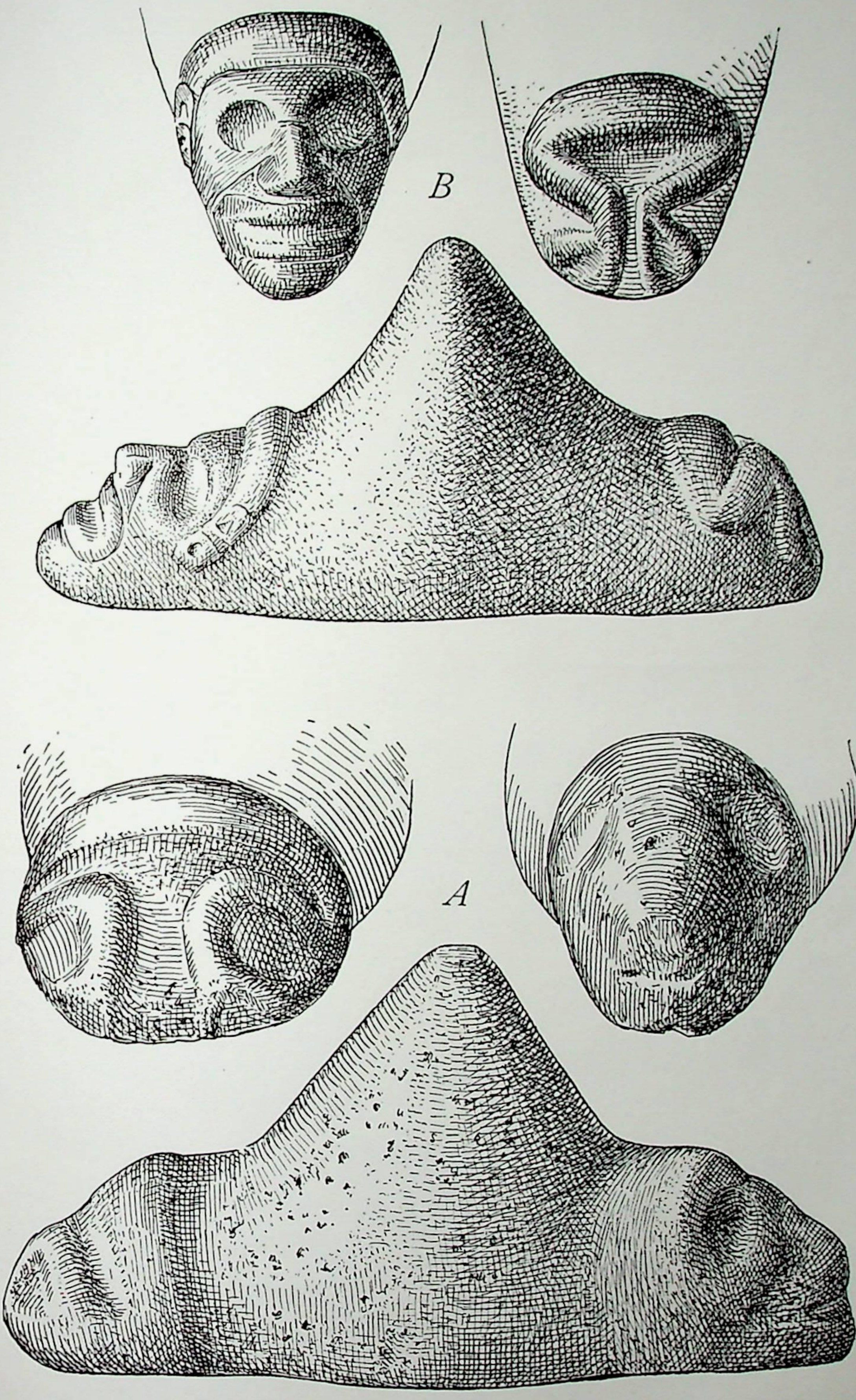
A



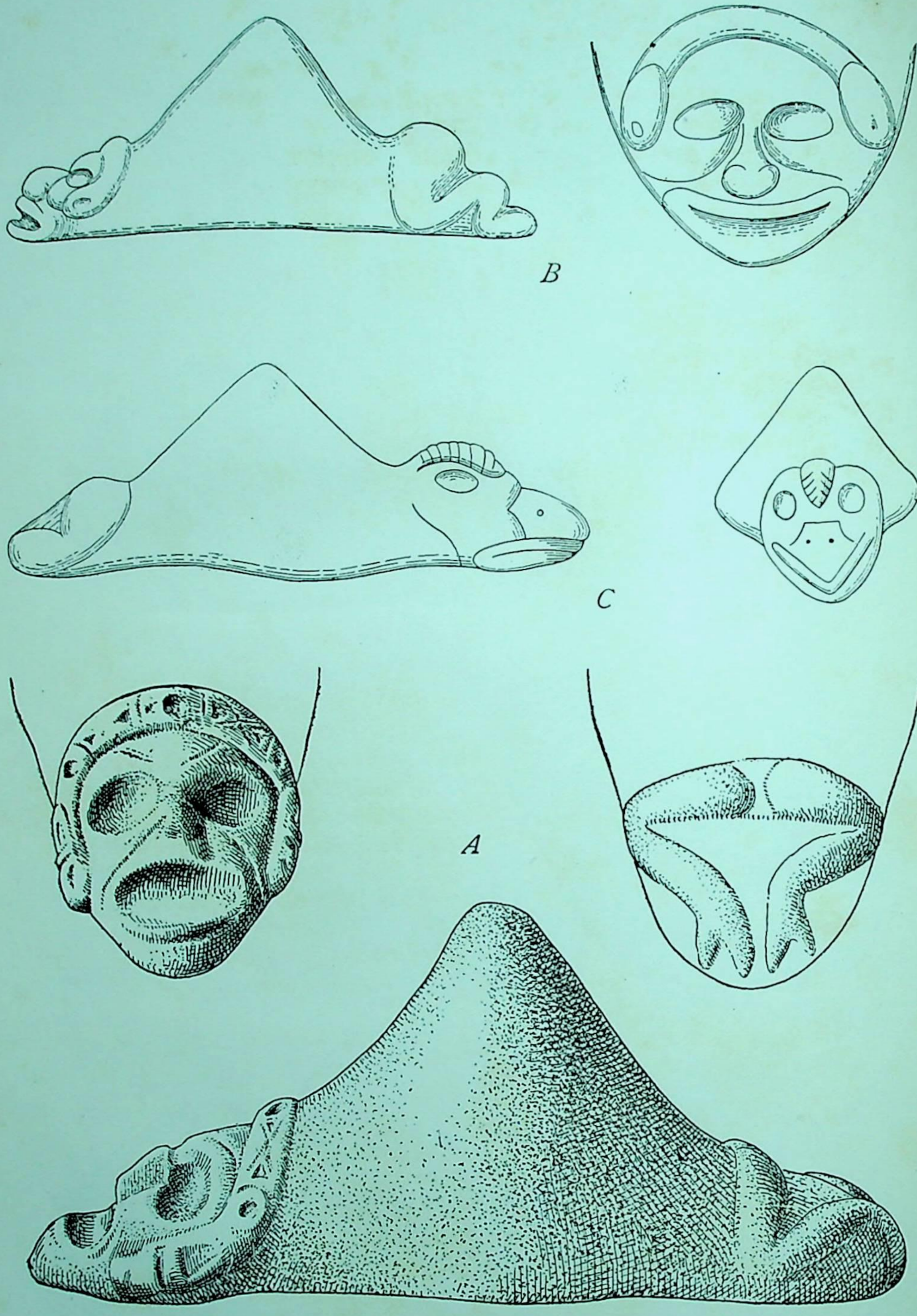
C

THREE-POINTED STONES OF FIRST TYPE, PORTO RICO (BERLIN MUSEUM)

A, 10 inches; *C*, 10 inches; *D*, 10.75 inches.



THREE-POINTED STONES OF THE FIRST TYPE, PORTO RICO (KRUG COLLECTION, BERLIN MUSEUM)



THREE-POINTED STONES OF THE FIRST TYPE, PORTO RICO
(BERLIN MUSEUM)

The next specimen to be considered, shown in plate 103, *A*, is in the Berlin Museum. It shows all the essential characteristic features of the first group, the fillet on the head being somewhat more elaborately decorated than is the case in the majority of these objects. Its nose is broken, but the chin is quite protuberant. The legs are slim and bifurcated at the extremity, suggesting webbed feet, as in the figure taken from the posterior end.

The head of plate 103, *B*, represents that of a human being, while *C* of the same plate is reptilian. The crest on the head of the latter is unique in three-pointed idols.

Mr. Theodoor de Booy, of the Heye Museum, collected in Santo Domingo a three-pointed stone of the first type, which is different from those yet described. This specimen is made of a brown stone resembling fossil wood. Morphologically it belongs to the second group of the first type, or those with a reptilian head, and is now in the Heye Museum. The exceptional feature of this specimen is its rounded base, which curves upward around the edge. There is a circular depression in the middle of this base, situated about equal distance from anterior and posterior ends.

Another specimen belonging to the first type of three-pointed stone, also collected by Mr. de Booy in Santo Domingo, differs from the preceding in the position of the mouth, which instead of extending longitudinally in the axis of the base is vertical to it. Perhaps the nearest approach to this is the form figured on plate XL of my Aborigines of Porto Rico. The stone of which this specimen is made has a whitish color, and its surface is quite rough.

Three imperfectly described specimens (pl. 104, *B*, *C*, *D*) of three-pointed stones in the Madrid collection, all of the first type, are worthy of notice. One of these (*C*) had the anterior ends cut in the form of the head of a bird with engraved wings on the sides. Figure *B* has a highly decorated fillet, engraved lines of which alternate with three pits, each surrounded by a ring. One of these pits is situated on the median line, the other two laterally.

Plate 104, *C*, in the Madrid Museum, represents a zemi in the form of a bird. When seen from above the bill appears to be upward. The head is distinct from the body, but appears to be swollen just back of the beak, the relative position of which to other organs is unique, the mouth generally pointing forward and not upward as is here the case. The apex of the conical projection is modified into a knob tipped slightly forward. The posterior end of the idol shows no indication of feet, legs, or other organs. This is one of the most exceptional forms of known three-pointed idols and differs radically from that of the other known bird forms.

A most remarkable three-pointed stone from the Trocadero Museum, shown in plate 105, *A*, is unique in having a head

carved on the posterior as well as on the anterior extremity. This specimen also bears exceptional incised markings on the anterior and posterior slope of the conical process. They are evidently decorative and have grooves extending from the apex a little to one side of the median line of the cone. From these arise 7 short parallel lines on one side and 10 on the opposite. These lateral grooves arising on the same side of the longitudinal line apparently have no reference to the position of the conoid projection between them. They extend toward, but do not join, other longitudinal scratches not very clearly indicated. If the whole figure could be made out we would probably find it to consist of two irregular rectangular designs crowned by a number of parallel lines, the two figures separated at their narrow sides by the conical elevation, but what was intended to be represented by these areas and parallel lines is not wholly clear.

The most exceptional feature of this three-pointed idol is its bicephalism, a head being found on each end. The structure of the forehead is also exceptional, for it would appear that representations of a pair of limbs had been crowded into the area just above the eyes on each side of the circular pit which marks the middle of the forehead.

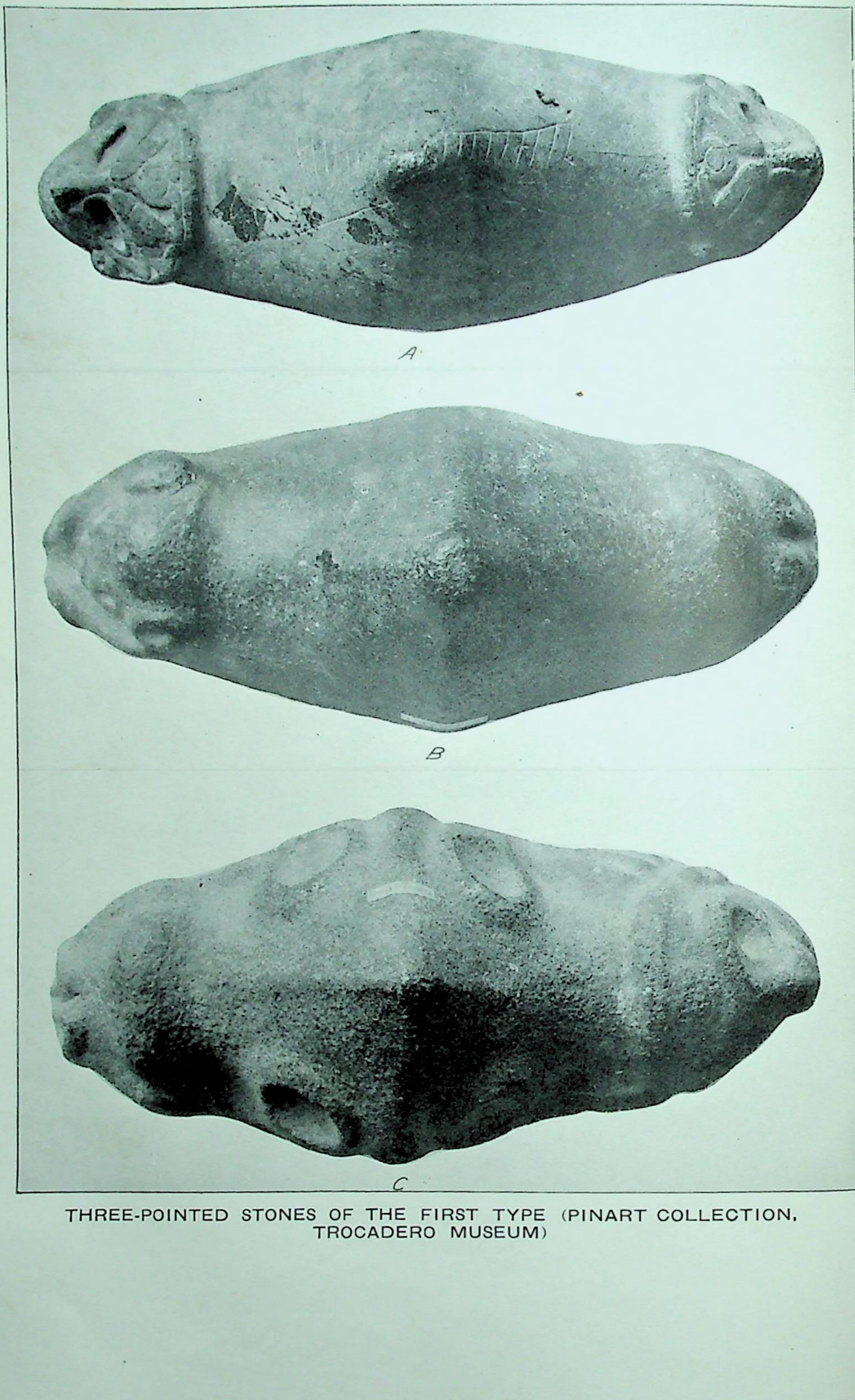
If we interpret the parts back of the eyes as arms or legs it would appear that the figure is kneeling, the knees being pointed forward and ending just back of the nose in claws that embrace the circular figure in the middle line; but it should be mentioned that the representations of claws, fingers, or toes are indistinct and the appendages are somewhat problematical. Back of these so-called folded leglike appendages there exists a rounded ridge on the side of a groove, plainly showing indications of a place of attachment by a cord that may have bound the idol to a foreign object.

The three-pointed idol shown in plate 105, *B*, belongs to the first type, or those with head on the anterior and legs on the posterior point; but although its form is somewhat different from any previously known, the essential structures are not very clear. The eyes appear to bulge from the sides of the head, while the nostrils are represented by pits mounted on papillæ like those of reptiles. The head is not relatively as long as that of the majority of three-pointed stones representing reptiles, but the mouth is large and extends backward rather than transversely, as is usually the case in stone representations of these animals.

The essential feature of the three-pointed stone, plate 105, *C*, also from the Trocadero Museum (Pinart collection), is the two pairs of circular pits, surrounded by ridges in high relief, engraved on the sides of the conoid projection. These appear to be separated from each other by another ridge extending from the point of the



THREE-POINTED STONES OF THE FIRST TYPE (MADRID MUSEUM)



THREE-POINTED STONES OF THE FIRST TYPE (PINART COLLECTION, TROCADERO MUSEUM)

conoid process to the margins of the base. A corresponding ridge likewise extends lengthwise of the three-pointed stone from the apex of the conoid to the base.

The three-pointed stone represented in plate 106, *A*, has a wide open mouth unlike any other specimen of this type, but recalls in other respects the first group of the first type.

Plate 106, *B*, from the Heye collection, represents a zemi of the first group of the first type, and plate 106, *C*, from the same collection belongs to the same type. This specimen is also distinguished by two elevations in the frontal fillet, and the characteristic shape of the ear, by which it can be separated from the majority of three-pointed stones with human heads and those where the mouth is distinctly anthropoid. This specimen, unlike other representations of the group to which it belongs, has toes at the ends of the legs. The apex of the conoid projection is broken, but shows evidence that formerly it inclined slightly forward.

There is a good example of the second group of the first type in the Heye collection. The head of this specimen (pl. 106, *D*) resembles that of a lizard.

There is a three-pointed stone in the Berlin Museum für Völkerkunde that has features of the head like a reptile, but differs from this animal in certain well-marked characteristics. Along the median line of the head of this specimen (pl. 107, *A*) there is an elevated ridge on the side of which are parallel markings recalling heads of reptiles. The nostrils, which are constant features of the three-pointed stones of the first class representing reptiles, are indicated by two pits situated slightly behind the tip of the snout. These are not, as is usually the case, surrounded by a ridge or mounted on an elevation. No ears, fillet, or nose were made out in the specimen.

The Heye collection has a specimen of three-pointed stones (pl. 107, *B*) with characteristics of the first and second types and seems to be a connecting form. This remarkable specimen is not only exceptional in having a head carved on the anterior surface of the conical projection, but the conical projection is deeply incised, the position of the ear being indicated by an incised triangle. The posterior extremity is also quite exceptional and unlike three-pointed stones of the first and second types.

The three-pointed stone, plate 107, *C*, belongs to the Heye Museum and has likenesses to a bird, but likewise resembles a turtle. Generally in other bird zemis wings are represented.

The three-pointed stone shown in plate 108, *A*, was collected by Mr. de Booy in Santo Domingo. It belongs to the first type and shows relations, in the form of the head, to those placed in the reptilian group. The object is made of a brown stone, said to be fossil wood, which effervesces with acid.

Perhaps the most exceptional feature of this object is the curved base, instead of flat, ending on each side in the pointed rim shown on the side. This base has a median circular depression about midway in its length. The lower lip extends forward and is curved upward, the mouth impression being a deep-cut groove.

The specimen shown in plate 108, *B*, belongs to the first type of three-pointed stones, and is remarkable in the position and shape of the mouth, which is turned upward instead of being horizontal, as is usually the case. The specimen was collected by Mr. de Booy in Santo Domingo.

Second Type of Three-Pointed Stones

The only specimen of the second type of three-pointed stones, or that with a face on the side of the conical projection, in the Heye collection is the form, plate 108, *C*, which appears never to have been finished. The position of the eyes is indicated by a depression, and there is a slight bridgelike elevation representing lips. The cone is low, its apex bent forward.

Specimens of these stones are not very common, and as a rule come from Santo Domingo.

Although pointed stones of the second type are so rare in Antillean collections, Mr. de Booy has added another to those already known. This specimen, like most of the others, was collected in Santo Domingo and resembles that figured on plate XLVII in Aborigines of Porto Rico. Like this specimen it has a pit on the surface of the conical projection, opposite the eyes, surrounded by an incised ring, around which are three lines of a triangular incised figure. In the published figure the ear has the form of the figure 6, but in this specimen the ear is a circle. The lower jaw of the specimen collected by Mr. de Booy is more pronounced than in any of the three-pointed stones of the second type yet described.

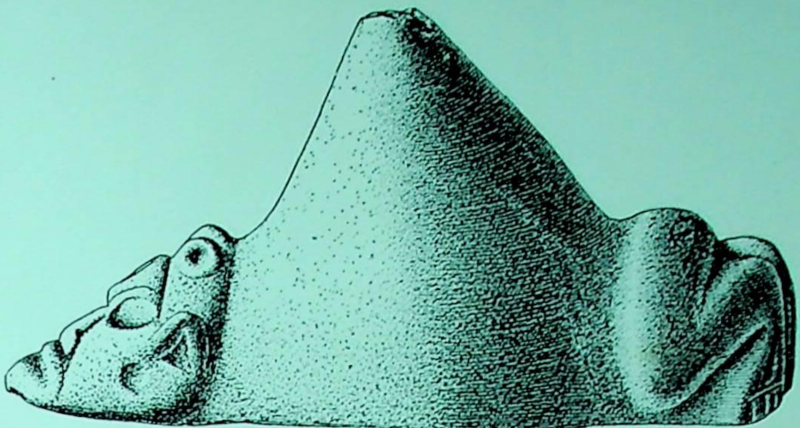
In a collection of Porto Rican antiquities presented to the National Museum by Miss B. A. Gould and described by the author [68] there are several instructive three-pointed stones—one of the first, two of the second, and one of the fourth type—which so far as known are unique. They are referred to as follows in the article above quoted:

"Specimens of the type in which a face is carved on one side of the conoid projection, or between its apex and the anterior projection, are much less abundant than those of the first type in Porto Rican collections. Only five zemis of this kind are described in the author's memoir, and the majority of these came from Santo Domingo.[69]

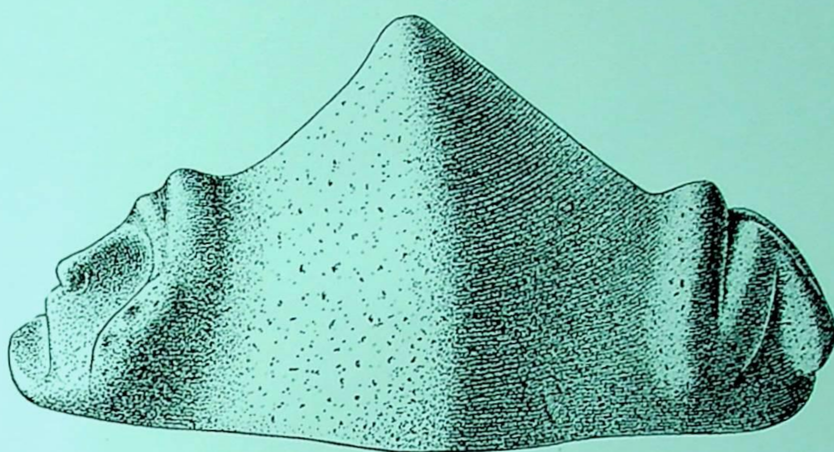
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[68] Further notes on the Archeology of Porto Rico, Amer. Anthrop., n. s., vol. x, No. 4, 1908.

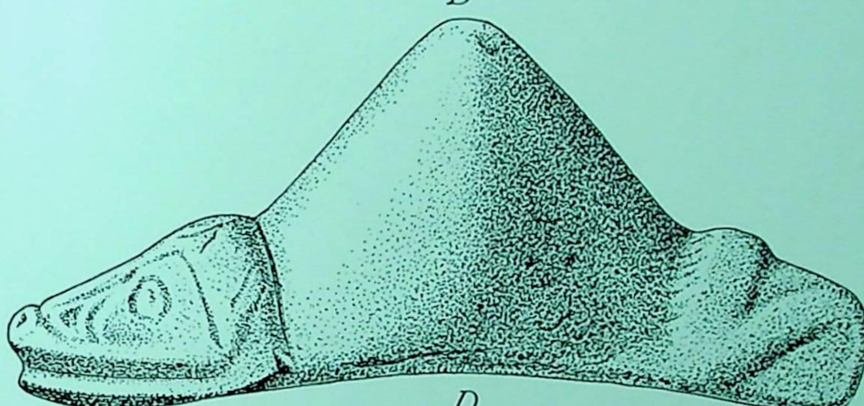
[69] The second type was originally distinguished from the first in the memoir above mentioned. The author has seen no representations of this type in other publications. A similar method of representing joints by incised circles is found in many Central American figures, and in Mexican bas-reliefs.



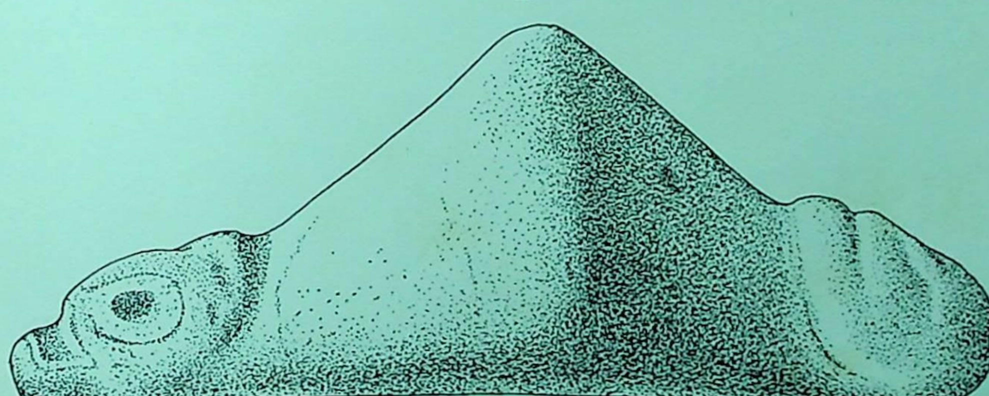
C



B



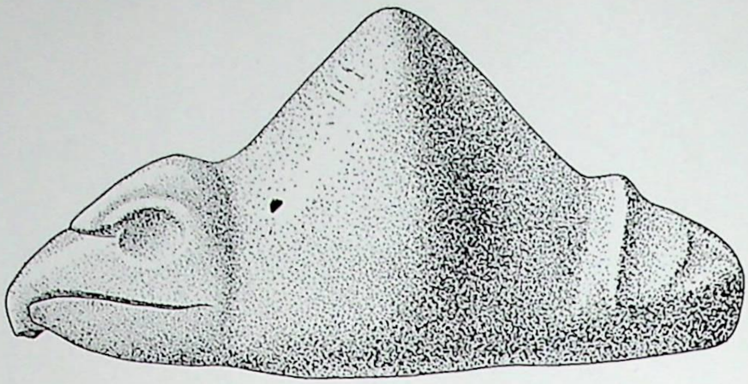
D



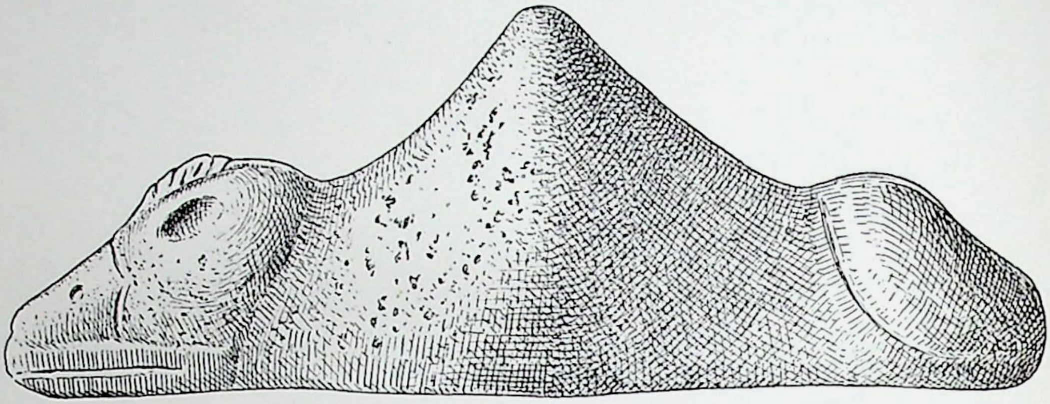
A

THREE-POINTED STONES OF THE FIRST TYPE, PORTO RICO

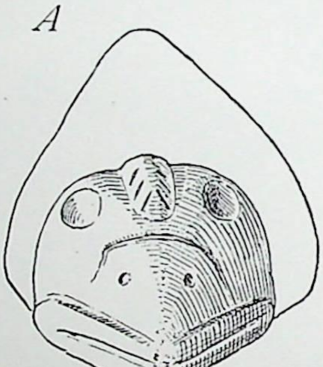
A, B, C, 10 inches.

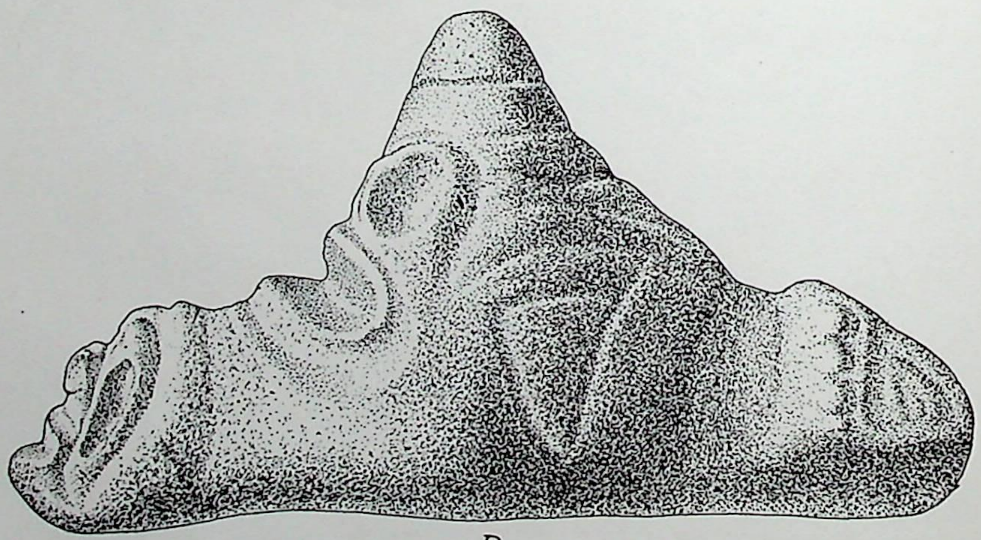


C



A

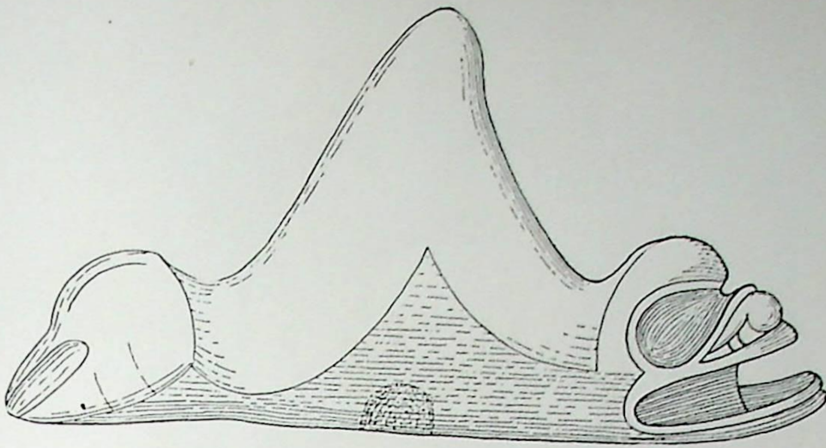




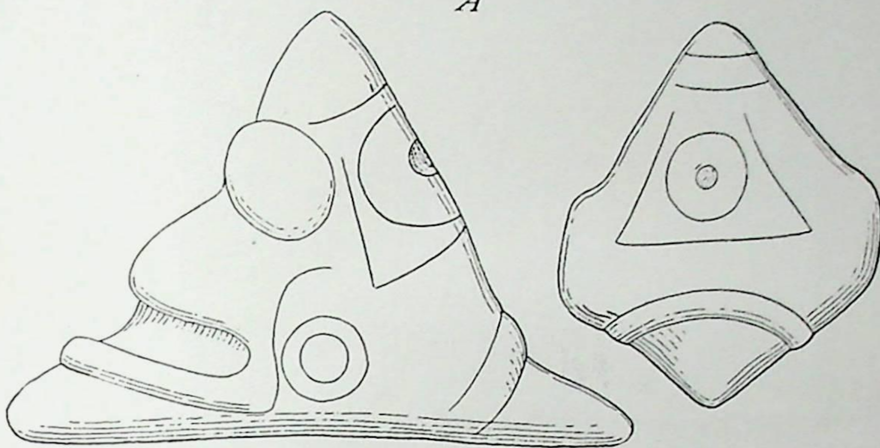
B

A, *C*, THREE-POINTED STONES OF THE FIRST TYPE, PORTO RICO. *B*, COMPOSITE THREE-POINTED STONE, FIRST AND SECOND TYPES, PORTO RICO

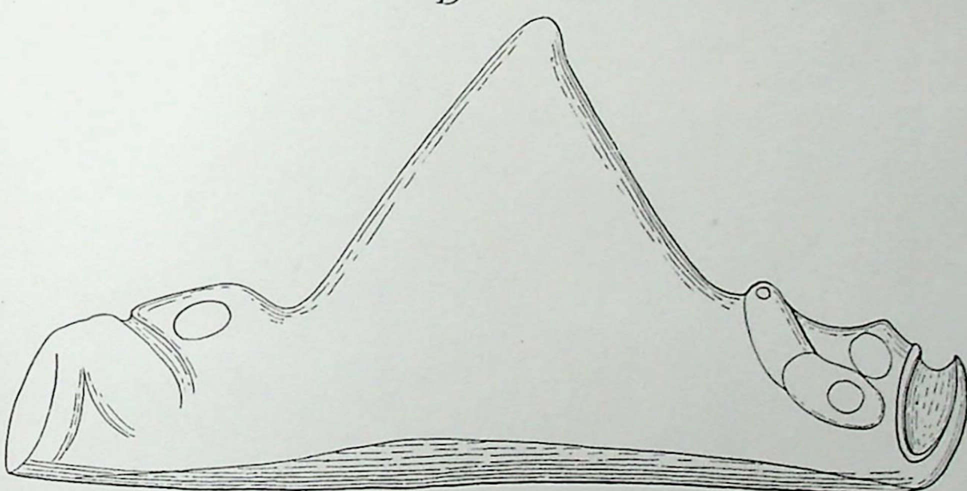
A, 5.5 inches.



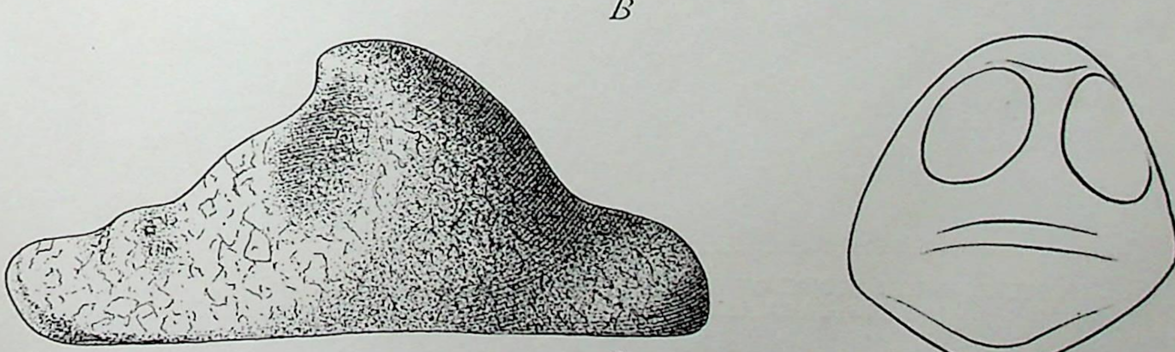
A



D



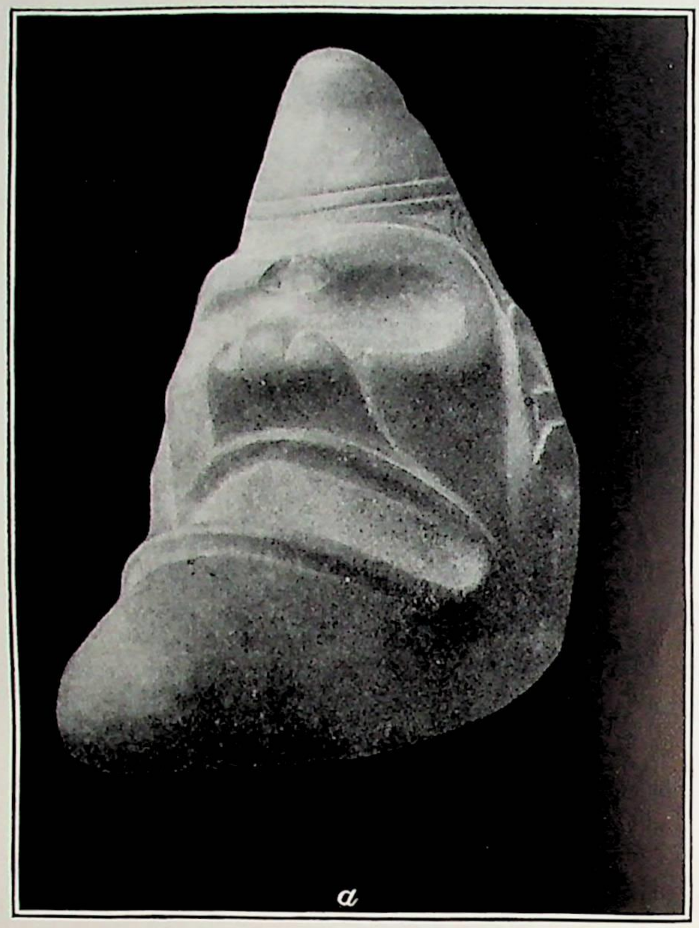
B

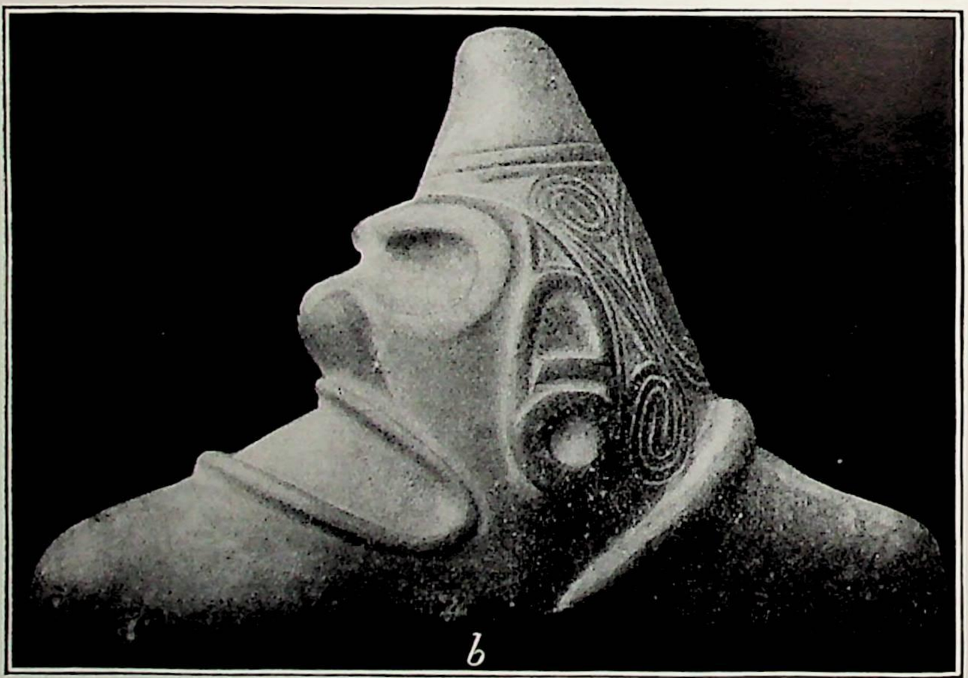


C

A, *B*, THREE-POINTED STONES OF THE FIRST TYPE; *C*, FOURTH TYPE; *D*, SECOND TYPE

A, 8.31 inches; *B*, 9.5 inches; *C*, 8 inches; *D*, 3.75 inches.





THREE-POINTED STONE OF SECOND TYPE (MUSEUM SANTIAGO DE LOS CABALLEROS, SANTO DOMINGO)

a, b, 4.13 inches.

There is one additional specimen of the same type in the collection here considered [pl. 108, *D*], and Señor Grullon has sent the author a photograph of still another [pl. 109, *A*, *B*], now in the Santiago Museum. These seven known specimens fall logically into two groups—three having limbs carved in relief on the sides, and four without any sign of appendage. One of the three-pointed stones here described belongs to the latter, the other to the former group.

"The specimen of the second type, sent by Miss Gould, came from Aguas Buenas, Porto Rico, and according to its label was found in a cave.[70] It is instructive in several particulars, not the least being its geographical locality, indicating that the type is Porto Rican as well as Dominican. This specimen has legs cut in low relief on the sides of the conoid projection. These appendages rise from the back and extend to the anterior projection, where they terminate in feet which are brought together below the mouth. Round depressions, or pits, are found near the position of the joints, and just below the apex of the conoid projection is a small lateral depression. Grooves worn in the base of the conoid projection seem to indicate that the object was lashed to some foreign body. The face of this idol is without nose, while lips and ears, which ordinarily are prominent in the type, are inconspicuous. The tip of the posterior projection is considerably battered, but striæ in the stone at this point would appear to have been intended for feet. The specimen measures 6 inches in length by 4 inches in height.

"The author's attention has been called by Señor Grullon to another fine and instructive specimen of this type from Santo Domingo [pl. 109]. It resembles that figured in plate XLV, figures *b*, *b′*, of the author's memoir on the Aborigines of Porto Rico, but unlike that specimen has incised scrolls around a circle on the back like the object represented in plate XLVII of the same paper.

"Unlike the one last mentioned, this zemi has no indication of legs or other appendage on the side of the conoid projections; but the ears are elaborately cut in relief, the mouth is large, the lips are rather narrow, the eyebrows flattened, and the nose is prominent. The ferrule back of the head, which possibly indicates a neckband, is pronounced.

"FOURTH TYPE OF THREE-POINTED ZEMIS

"The fourth type of three-pointed zemis includes all those which are destitute of head on either the anterior projection or the conoid prominence, and have no indication of a face on any part of the object. The specimens of this type vary considerably in general

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[70] Miss Gould has kindly furnished a photograph of the exact point in the cave where she was informed this specimen was found.

form, most of them having the anterior and posterior projections blunt and rounded, the cone being of limited height. The best figure of this variety can be seen in plate L, *e*, of the author's memoir on the Aborigines of Porto Rico. Another subdivision of the type [pl. 110, *A*, *B*] has more pointed anterior and posterior projections, the surface lying between the anterior projection and the apex of the cone being slightly concave, while that portion which extends between the posterior projection and the apex is slightly convex. There are sometimes pronounced lateral ridges that extend from the apex of the cone to the edge of the base.

"In the third subdivision of the type the conoid projection is slender, while in the fourth the cone seems to rise out of a depression surrounded by a slightly elevated lip. The first two subdivisions of this type have been figured elsewhere (op. cit., pl. L) ; the second two, here distinguished from the others for the first time, have not hitherto been illustrated. They will be considered in turn, beginning with the one last mentioned.

"An instructive new form of three-pointed zemis, to which the author's attention was called by Señor Grullon, is provisionally placed in the fourth subdivision of the fourth type, from which it differs in having an elevated fold or raised ridge inclosing a depression, out of which rises the conoid projection. Although the general appearance of this stone has suggested phallicism, the author would not so interpret it. This is the only specimen of this form thus far described.[70a]

"Another three-pointed zemi from Santiago has the conoid projection quite slender, more so than that of any other specimen. Its apex tips slightly forward toward the anterior end of the zemi. A photograph of this idol was sent to the author by Señor Grullon. This specimen belongs to the third subdivision of the fourth type."

Four examples of the fourth type of tripointed stones are here described for the first time. Two of these (pl. 110, *A*, *B*) are in the Berlin Museum and one in the Heye collection.

The fourth type of tripointed stones is easy to distinguish, from the fact that while it shows the three points—anterior, posterior, and conical projections—it has no representative of human or animal head carved on it, although not without geometrical designs, as parallel lines.

Plate 111, *A*, represents a specimen which shows grooves near the anterior and posterior ends for lashing to some foreign object. The cone is girt by parallel lines, and the base is slightly concave.

Plate 111, *B*, represents one of the Heye specimens, which differs from others in having vertical lines near the apex of the conical pro-

[70a] Figured in Further Notes on the Archeology of Porto Rico, Amer. Anthrop., vol. x, 1908.

jection. These lines are also represented in the second Berlin specimen (pl. 110, *A*), in which the base has a central groove with a well-marked rounded edge on each side. The object shown in plate 111, *C*, represents the passage from this type of three-pointed stone to the first type.

Other specimens of the three-pointed stones of the fourth type were collected by Mr. de Booy in Santo Domingo. They do not differ essentially from those already figured; certain of them have rough surfaces and show indications of having been used for purposes different from that for which they were originally made.



FIG. 51.—Three-pointed stone with face on anterior end.

The fourth type of three-pointed stones is a large and comprehensive one containing several different forms, as may be seen by an examination of the objects figured in my Aborigines of Porto Rico. It will probably be necessary later to divide this type into several subgroups, and it is possible that specimens now referred to the type have different uses.

Figure 51 presents features of a three-pointed stone of the fourth type so far as general form is concerned, but with a face cut on the anterior end, consisting of a circle with dots for eyes. There is a similar face with like representations of eyes and mouth on the posterior end in plate 111, *C*. This feature calls to mind one of the three-pointed stones of the first group, already described (fig. 50).

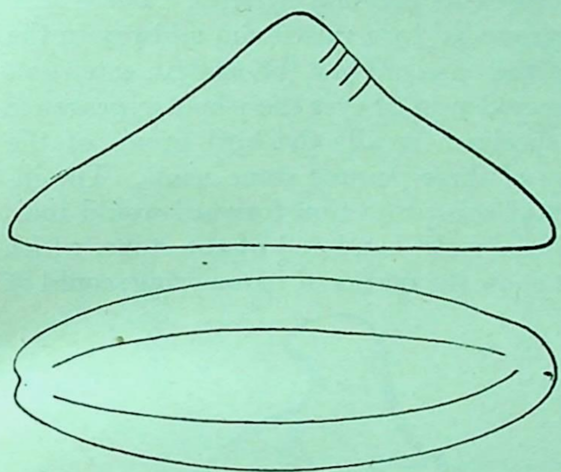


FIG. 52.—Three-pointed stone of fourth type, from side and base. (5 inches.)

The specimen shown in figure 52 belongs to the fourth type, but has certain peculiarities different from it, one of which is four parallel incised lines near the point of the cone, the meaning of which is not known.

The third type of three-pointed stones, one of which is shown from front and side in plate 111, *D*, grades into stone heads. A well-made specimen (pl. 111, *E*) in the Heye collection presents all the essential features of the same group as described and figured in the author's article on the Aborigines of Porto Rico. A similar specimen belonging to the same group is also figured by Dr. Haeberlin.[71]

[71] Archaeological work in Porto Rico, p. 234.

There are included in this group of stone heads objects (pl. 111, *E*) that might more properly be called three-pointed or triangular stones, and they grade into circular or oval disks upon which faces are indicated.

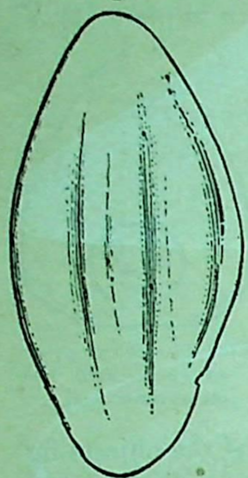


FIG. 53.—Base of three-pointed stone of fourth type, showing longitudinal furrows. (6 inches.)

THREE-POINTED STONE USED FOR PESTLE

The stone object shown in figure 54 shows marked evidences of a secondary use. It is evidently a three-pointed zemi of peculiar form, the anterior end of which is modified by evidences of hammering as if used as a pestle for bruising roots or grains.

If we interpret the original use as the same as that of other three-pointed stones we have peculiarities not previously recorded for this type of stone objects. On the supposition that it is the posterior end which has been modified or shows the effect of pounding, the centrally placed of the three knobs, as shown in the figures of the object from above, would represent the apex, while the two lateral knobs in the same figure represent excrescences that are present in certain forms described in previous articles. There is a central circular depression surrounded by a raised rim midway in the length of the base. While the median extension shows no evidences of eyes the whole appearance of this specimen recalls the bird group of the first type of three-pointed stone zemis. The inclination of this projection forward would indicate that the right-hand end of the stone, which does not show the marks of hammering, could be

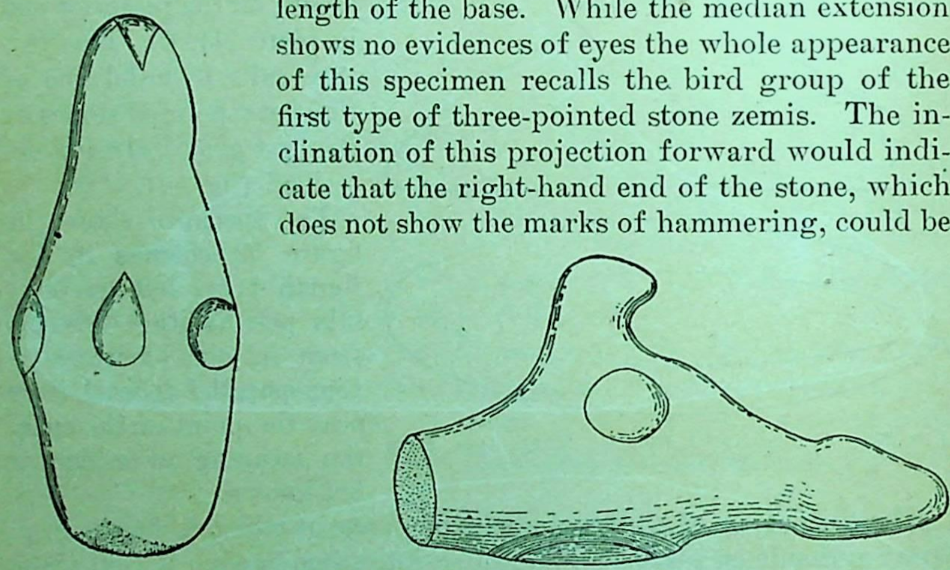
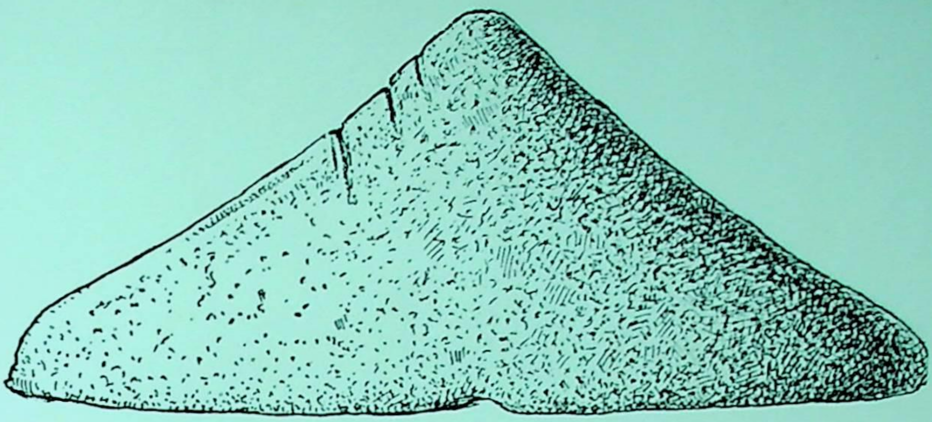
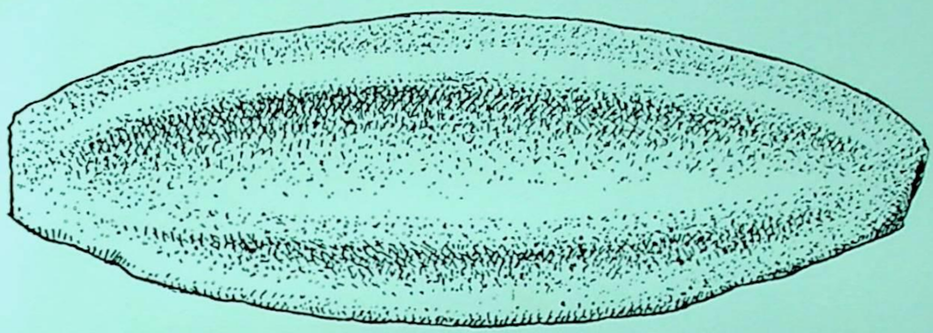


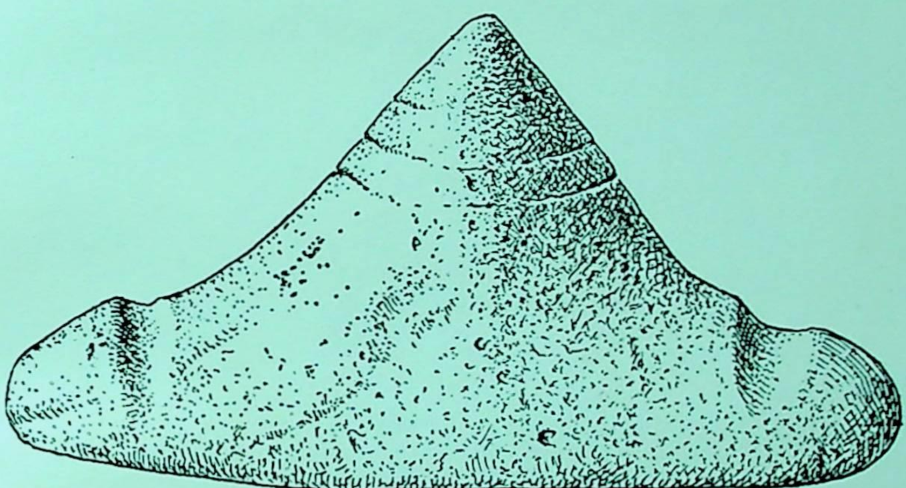
FIG. 54.—Problematical stone recalling three-pointed idol, with superficial knobs on body. Front and side views. (4.75 inches.)

interpreted as the anterior end of the figure or a handle by which it may have been carried as a baton. The general appearance of the object suggests a new type of three-pointed stones or an aberrant example of the first type.

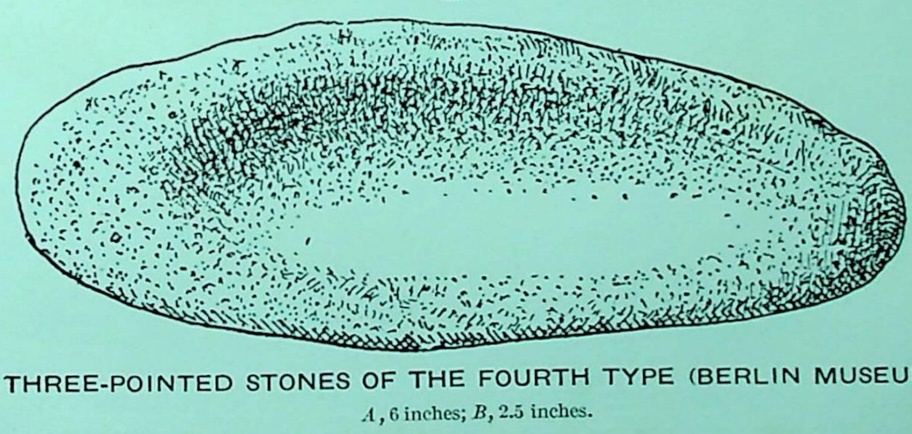


A



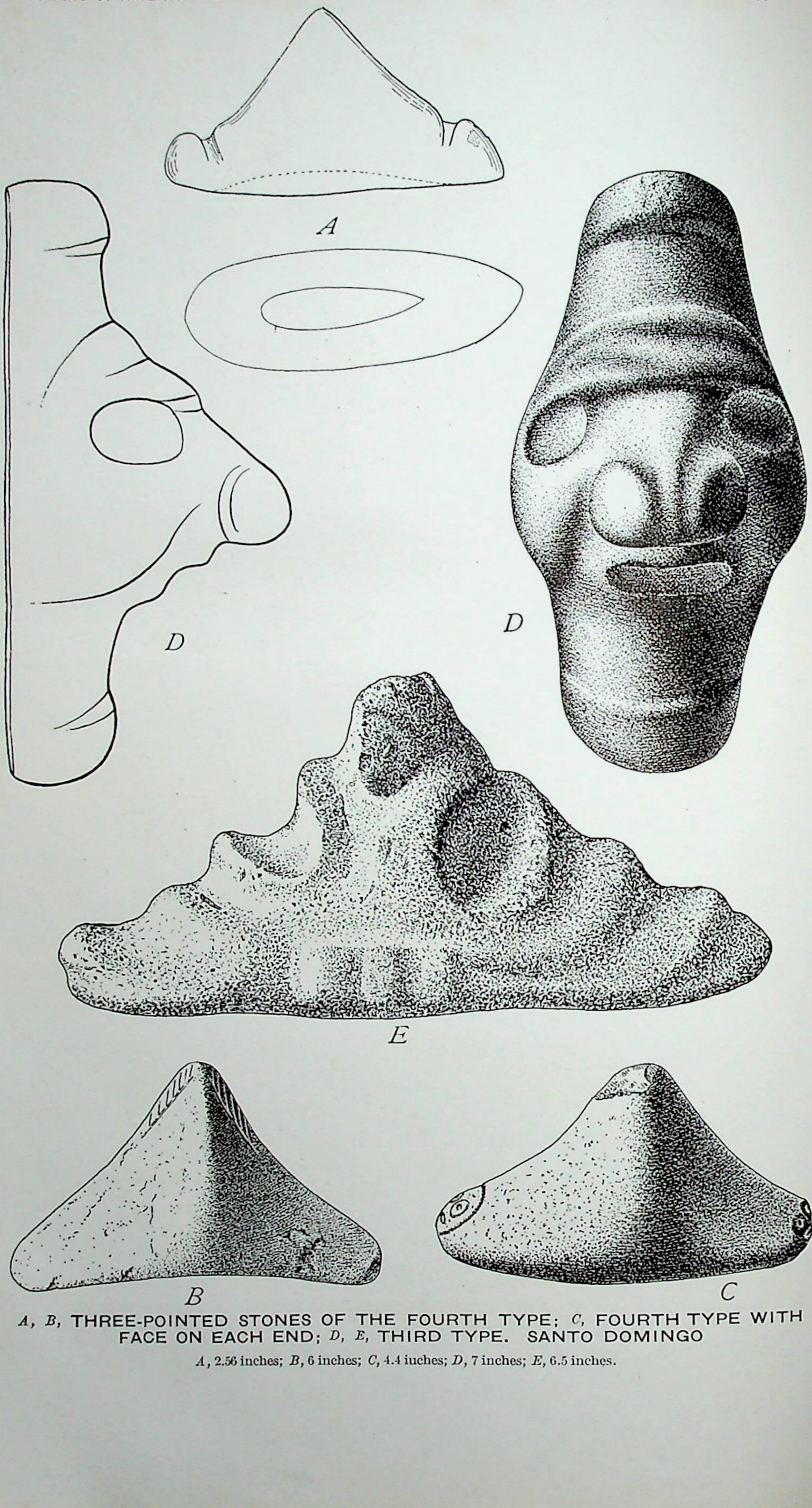


B



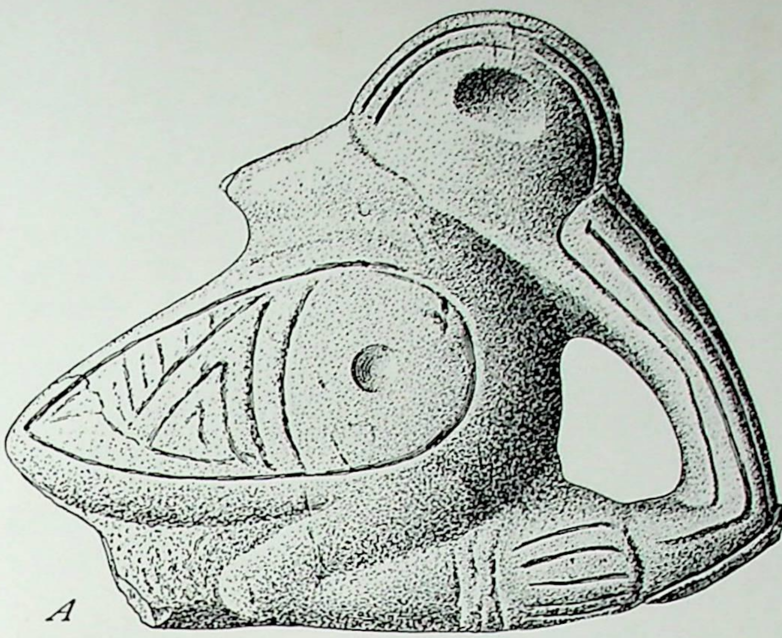
THREE-POINTED STONES OF THE FOURTH TYPE (BERLIN MUSEUM)

A, 6 inches; *B*, 2.5 inches.

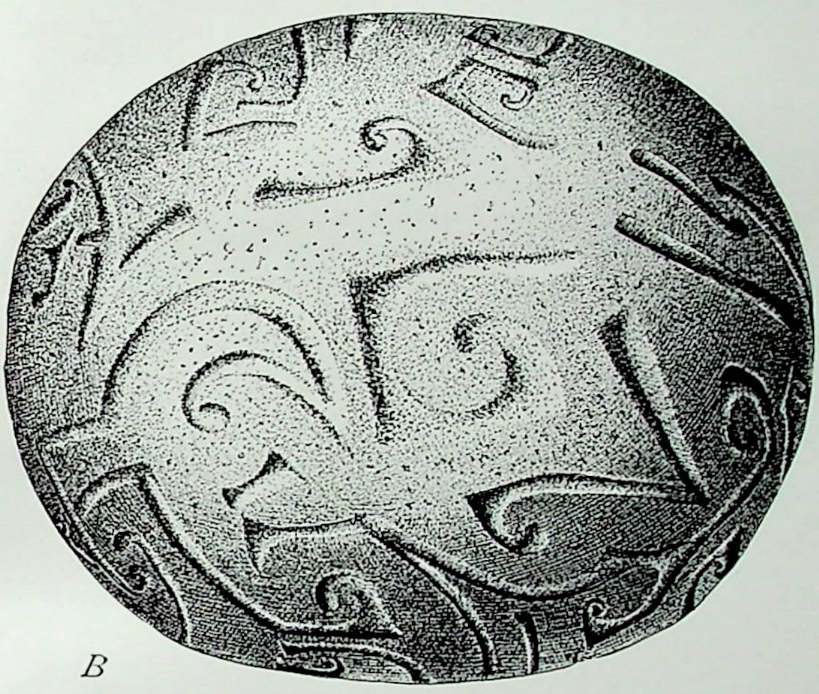


A, *B*, THREE-POINTED STONES OF THE FOURTH TYPE; *C*, FOURTH TYPE WITH FACE ON EACH END; *D*, *E*, THIRD TYPE. SANTO DOMINGO

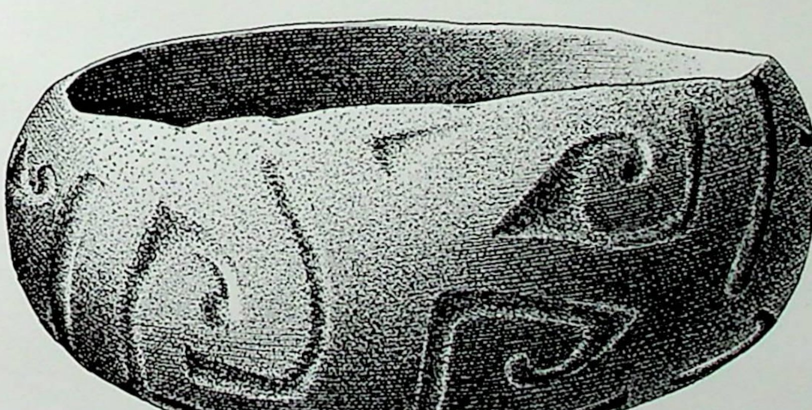
A, 2.56 inches; *B*, 6 inches; *C*, 4.4 inches; *D*, 7 inches; *E*, 6.5 inches.



A



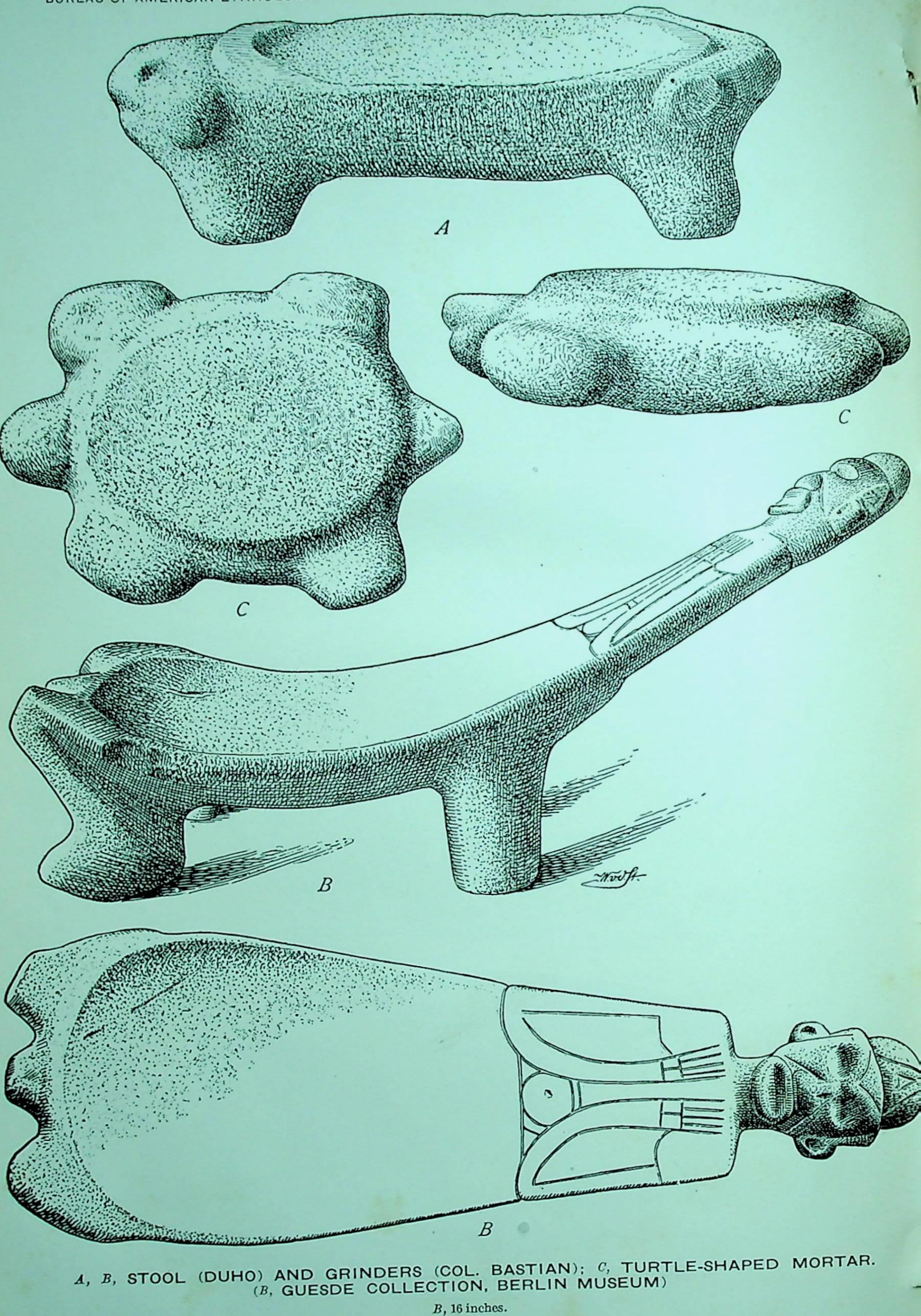
B



C

A, STONE BIRD; *B*, *C*, STONE MORTAR, PORTO RICO

B, *C*, 10 inches.



A, *B*, STOOL (DUHO) AND GRINDERS (COL. BASTIAN); *C*, TURTLE-SHAPED MORTAR.
(*B*, GUESDE COLLECTION, BERLIN MUSEUM)

B, 16 inches.

IDOLS

Several stone objects of spherical or oblong form are covered with projecting warts or wens, the signification of which is unknown.

A few of these, resembling idols, but showing marks of having been used as pounding implements, were purchased in Paris by Mr. Heye. The stone idol shown in figure 31 shares with the stone balls the problematical excrescences.

One of the most instructive idols in the Heye collection from Santo Domingo obtained by Mr. Theodoor de Booy near Boca Chica, on the south coast of Santo Domingo, is said to have been found in a cave. This object, figured in plate 120, recalls in several respects an object figured by Pinart and is remarkable on account of the large size of the legs, as if afflicted with elephantiasis. How much of these legs represents a seat is not known, but the rest of the human anatomy is so well formed that one is tempted to interpret these appendages as part of the seat. The relief figures on the shoulders and that on the belt are instructive. The ornamentation of the back of the head is very similar to that frequently found on tri-pointed zemis. The hunchback is likewise not without a parallel in clay figures already elsewhere described by Pinart.

The head has a close likeness to figure *a*, plate lxxxii, in Aborigines of Porto Rico, where we also have the same elephantiasis in the lower legs. Particularly interesting is the head on the belt shown in profile, which may have been a buckle. The features of technique are well brought out in the plate.

BIRD STONES

A worked stone from Arecibo purchased by the author from Señor Seiyo for the Heye collection has a bird form and is the only specimen of this form known to the author, with the exception of one described by him in the Aborigines of Porto Rico (pl. LVI, fig. *a*, *a'*). This specimen has the different parts as legs and wings of a bird somewhat more elaborated than that in the National Museum.

This specimen (pl. 112, *A*) represents a bird with legs drawn up below the breast. The wings are represented in the conventional form, the joints being indicated by depressions, while the surface is crossed by curved lines and triangular figures which may represent feathers. The use of this object is not known, nor can the specific bird represented be identified.

MORTARS AND GRINDERS.

The ordinary form of Antillean mortars and grinders, like those of other primitive races, is destitute of decoration and has a depression in the surface. It may be of stone or wood. The former was generally used for grinding corn. Yuca roots were ground into meal

for cassava bread on a flat board set with sharpened stones—a form still used by the Carib.

In the collection of the United States National Museum there are several flat, rough stones, rectangular in shape, with rounded corners, that have been identified as grinding stones. These objects have a paired extension on one margin. They are supposed to have been used in grinding seeds or roots, and are not common. Similar flat stones with two projections occur in several European museums, the best of which known to the author are in the Trocadero Museum, Paris.

A mortar presented to the United States National Museum by Miss A. B. Gould has a concavity on each side, and a distinct groove extending around the body. Of all West Indian mortars seen by the author this is the most interesting and is of most exceptional form.

There are, however, many other forms, not unlike those described by the author, some of which are represented in the Heye collection. Haeberlin figures a fragment of a clay mortar from Porto Rico.

One of the stone mortars, closely resembling in form an earthenware vessel, is figured in plate 112, *B*, *C*. This utensil is ornamented with incised geometrical designs on the outer surface. The decorations cover also the bottom of the mortar and bowl and are quite different from the majority of geometric figures on earthenware objects. They have, however, this instructive feature, that most of the curved lines end in an enlargement—a common characteristic of incised decorations.

It is difficult to distinguish an implement on which the root of the yuca, chocolate, or corn was ground from a seat (duho), and one or two of the grinders are identified by some writers as seats. There is reason to suspect these identifications, but not enough to prove their falsity. It is probable that some of the objects described as seats or Porto Rican duhos are in reality grinding stones, especially those of very small size; but at present the author has not been able to differentiate the two, and it is possible that some of them were used for both purposes. In this connection an incident quoted from Du Tertre may be as instructive as it is amusing: "I recall," he writes (p. 433), "that an Indian capitaine, who was quite newly clothed, was rebuked quite sharply by Madame Aubert, the wife of our governor in the island, for his having sat upon her bed (hamas), which was of white fustian, where he had left a good part of his breeches (pantaloon legs). Then M. Aubert, her husband, invited him to dinner. He had much difficulty in coming to a determination what to do, seeing in advance that he would redden the bench on which he would sit; but having cast his eyes on his plate, he imagined that this round article, which only needed three legs to make of it a stool, had been placed there to serve as a place to sit on, he took it and put it on the bench and

sat on it; and seeing every one laughing at his action, he became angry and informed us by means of an interpreter that he did not know what posture to assume among the French, and that as long as he lived he would never return!"

Some of the chocolate slabs have short, stumpy legs; others are flat stones. These flat stones are, however, easily distinguished from those used in cooking cassava bread.

According to Labat,[72] "before the Europeans brought the iron plates [for frying cassava cakes] they made their cassava on large flat, thin stones, which they adjusted for this purpose in decreasing the thickness. Many of these stones are found on the seashore. It is a kind of sandstone or pebble of the color of iron, ordinarily 2 or 3 feet long and oval. They heated it for the purpose of removing more easily the fragments and reducing it to the desired shape. I saw one of these stones in 1701 at quay St. Louis, in the island of Santo Domingo, at the house of a man named Castras, manager of the house of the company of the Isle à Vache. It was 22 inches long and 14½ inches wide and 3 inches thick. It was very even, and it would have been difficult to make it better with tools. In digging the ground they found it with some pieces of pottery and figures of grotesque shapes, which were supposed to be Indian idols, worshipped on the island when it was discovered by the Spanish."

The specimen shown in plate 113, *A*, is about twice as long as broad, rounded below, and mounted on four stumpy legs. It has a head on one edge. This specimen was found near a town situated in the interior of Porto Rico not far from the military road from San Juan to Ponce.

On certain grinders (pl. 113, *C*) the position of the heads, legs, and tails represented by simple extensions reminds one of a turtle form. This specimen, now in the Berlin Museum, was found at Cape Haitien.

The most instructive form of chocolate grinders (stone seats or "duhos") in the Heye Museum is shown in figure 55. This beautiful specimen is made of a greenish stone with surface very smooth and polished on both the upper and lower surfaces.

The head is a continuation of one side and closely resembles that of a turtle, having a blunt nose, mouth extending far backward, and eyes obscurely indicated by elongated depressions in the side of the head. On each side of the neck above the forelegs are projections comparable with the fore flippers of a turtle, without any indication of claws or leg joints. The concave upper surface of the seat follows the line of the neck, narrowing as it approaches the back of the head.

There are four short, stumpy round legs, one of which is broken, which support the body of the seat. The diminutive size of this

[72] Nouveau Voyage aux Isles de l'Amerique, vol. I, pp. 409–410.

specimen would seem to indicate that it was of a very different type from that used by the caciques for seats, and it may have been used for some other purpose. Unlike many other seats it has no back, and the smoothness of the upper surface implies that it was not used as a mortar. It may have been one of those seats on which idols were placed, or it may have been used for some household god. Its resemblance to some of the known stone seats has led me to place it among the duhos, several specimens of which are described in my Aborigines of Porto Rico.

The most elaborate duho made of stone is that shown in plate 113, *B*, in which we have the back prolonged beyond the seat and modified into a human head. The remarkable things about this specimen are the arms and portions of the upper body engraved on the inside surface of the back.

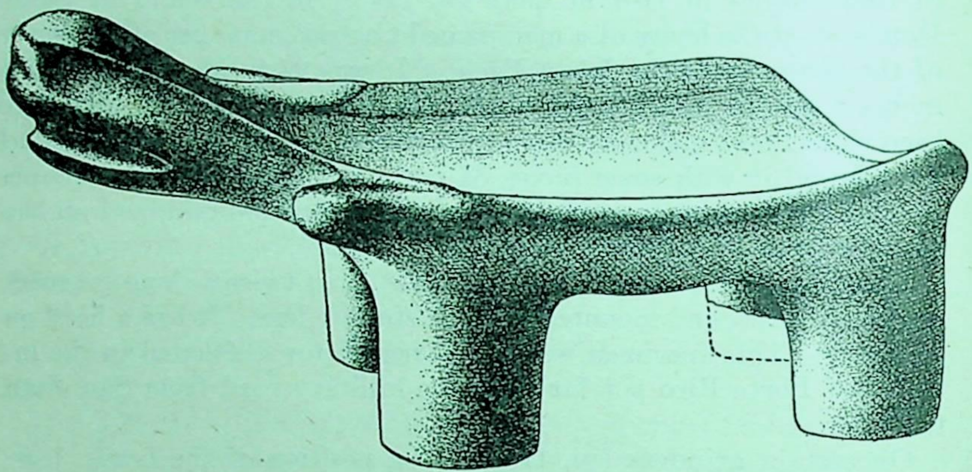


FIG. 55.—Chocolate grinder shaped like a seat or duho. (9.31 inches.)

The seat and its short legs are not greatly unlike the corresponding parts of other duhos. The anterior legs are much larger and thicker than the posterior, and between them is a projection comparable with the turtle head of the specimen just described. Neither of these parts is sufficiently well cut to clearly indicate that they were intended to represent any life forms. The posterior legs are longer than the anterior and are destitute of ornamentation.

That neither of these represent any part or appendages of the body to which the head graven on the extremity of the back belongs is evident from the position and character of the arms engraved on the flat inner surface of the back of the duho. These arms are so represented that the hands are folded on the breast, the four fingers reaching almost to the neck. The upper arms are straight, the lower curved, a line connecting the elbows indicating the margin of the junction of the body and the seat. This point of union is also well marked on the rear side on a level with the elbows. The only

part of the body that can be identified is a circle with central dot, probably the umbilicus, which for some unknown reason is so constant on figures of Antilleans.

In examining the arrangement of parts in this duho, and especially the relation of the head and arms of the human figure which forms its back to that of the seat itself, it appears that the former is an addition and not an essential part of the latter. In instances, however, where an animal head appears between the two anterior legs of the duho, these legs may be regarded as the fore limbs of the same animal. Such is probably true of this duho, but the head on the back has nothing to do with the rude anterior limbs here represented.

This stone seat, formerly in Paris, now in the Museum für Völkerkunde, Berlin, has already been described and figured by the late Prof. O. T. Mason in his account of the Guesde collection. The specimen is one of the best-made examples of these objects yet found.

This specimen, according to the late Prof. Mason, was identified by M. Guesde as an "idol." Mason considered it a duho or chair, as shown in the following quotation:

"A stone stool or chair of the variety mentioned and illustrated in the Smithsonian Report, 1876, page 376. The material of those there described, however, is either sandstone or wood, and the device is some animal form. In M. Guesde's specimen the material is a dark brown volcanic stone, and the device is the human form. Moreover, the position is inverted. The man is lying on his back, with his feet drawn up to form the legs of the stool. His arms, without any attempt at accuracy of delineation, are doubled on his neck. The eyes and mouth are like the same features in all aboriginal statuary, and beautiful shells were doubtless inserted in them. The ears have large openings in which were inserted plugs of wood, stone, shell, or feathers. The legs of the chair, just beneath the man's shoulders, are mere projections from the stone. The markings in the head and forehead are quite tastefully designed. The back does not slope upward as much as in the Latimer specimens. In Dr. Liborio Lerda's Eldorado is figured a mummified human body seated on a stone stool in a cist. The figure in this paper and notes of im Thurn (Timehri, I, 271) should be consulted. The impossibility of using such objects as mealing stones was pointed out by the author of these notes 10 years ago, and im Thurn adds the very pertinent argument that the ancient West Indians did not grind maize, subsisting mainly on cassava. Dr. Joseph Jones quotes Sheldon as saying: 'When a Carib died his body was placed in the grave in an attitude resembling that in which they crouched around the fire or the table when alive, with the elbows on the knees and the palms of the hands against the cheeks.' Length, 16 inches; width, 6½ inches; height of head, 6½ inches; of feet, 2 to 3 inches."[73]

[73] Mason, op. cit., p. 827.

By the author's interpretation the extended portion of this chair should not be confounded with the horizontal portion or seat proper. We find the head, arms, and upper body of a human figure graven on the former, while an animal figure is represented in the latter. The anterior appendages or front legs of the seat have a rude head between them, and the legs of the upright figure are not represented. The identification of the projection on the anterior border as a head conforms with other seats having a head carved in the same position.

Labat describes how these grinders are used. Apparently, from his account, after the kernels of cacao have been roasted to a paste and cleaned of their skin in a wooden mortar, they are pounded on a stone to make the meal finer. "The stones," he writes, "used by them should be hard, a little porous in order that the fire placed below should heat them more readily; but they should not be liable to split, nor to calcine, and their grain should be sufficiently hard not to disintegrate, because it would spoil the taste. They should be polished with care, and cleaned, washed, and well rubbed immediately their use is finished. Ordinarily they are 15 to 18 inches in width by 2½ feet long. They are excavated their whole length, so that they are concave and are left 2 or 3 inches thick. They have at each extremity a foot about 4 inches square and 6 inches high to hold up the stone and raise it high enough from the ground to place fire under it."[74]

Labat, in speaking of the seats used by the Carib in bathing, hints at the form of the chocolate stones. He says (p. 109): "The Caribs arise before day and a little before sunrise, withdrawing from the house for their necessities, which they never do near the houses, but in a place a little away, when they make a hole and subsequently cover it with earth. They immediately go into the sea to bathe if there is no river near; if there is, however, they do not go into the ocean. When they return *they sit down on a little seat of one piece of wood shaped like a chocolate stone.*"[75]

The dead were buried in a contracted or sitting posture. Jefferys says:[75a] "The corpse was not laid out horizontally, but seated on a little bench under a kind of wooden arch, to hinder the earth from falling in upon it. * * * But the bodies of the Caciques were not interred till they had been first well embowled and dried by fire."

PESTLES

The pestles of the Porto Rico-Santo Domingo area are among the finest stone implements in the West Indies, and are readily distinguished by the carvings on the head. In the Berlin Museum there is an undescribed pestle from St. Thomas (fig. 56) that approaches in

[74] Labat, vol. VI, pp. 58, 59.
[75] Op. cit., p. 109. This would certainly imply that duhos and "chocolate stones" were practically the same in some instances—a conclusion arrived at by comparative studies.
[75a] French Dominions, pt. 2, p. 16.

form the Porto Rico or Santo Domingo type. While the provenance of this specimen may be doubtful, its presence in a Danish island would not be unexpected, if the Porto Rico-Santo Domingo culture areas embrace also the islands of St. Thomas, Santa Cruz, and San Juan.

The St. Thomas pestle (pl. 114, *A*) has a well-developed disk, a thick handle, and a prominent ferrule, the tip of the handle being sculptured into a head with protruding lower jaw, sunken eyes, and prominent eyebrows marked with a fillet, which ends in slightly developed ears after arching over the forehead.

As this specimen is the only one of its form described from St. Thomas, the author suspects that it was brought there from Santo Domingo. The Porto Rico pestles are generally destitute of carved heads on the handle.

Plate 114, *B*, shows front and side views of a pestle from Haiti in the Berlin Museum. This specimen shows characteristics of the Santo Domingo type, the most marked of which is the presence of a ferrule at the point where the handle joins the enlarged lenticular base. The surface of the base is convex; the diameter of the handle at its union with the base is less than midway in its length. The end of the handle is enlarged, bearing a carved imitation of a human head, body, and retracted legs.

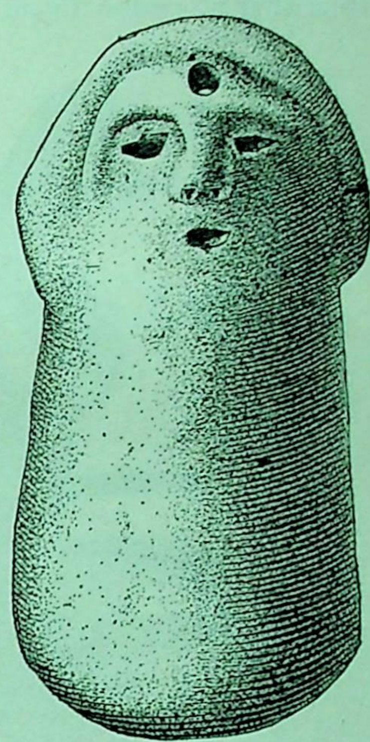


FIG. 56.—Problematical object shaped like a pestle. (3.5 inches.)

A pestle somewhat better sculptured than that last mentioned was found in Haiti and is now in the Berlin Museum. Its essential features are seen in plate 114, *C*. The resemblance of the head to that of a human being is better than that just described, and the limbs are more skillfully carved. Both of these pestles are inferior to some of those in the Meriño collection, elsewhere described.[76]

Quite inferior in sculpture to the pestle in the Meriño collection from Santo Domingo or those in the Berlin Museum, above described, is one in the Heye Museum, figured in plate 115, *A*. This specimen is somewhat smaller than the preceding, differing from it in the

[76] Aborigines of Porto Rico, 25th Ann. Rept. Bur. Amer. Ethn.

absence of a ferrule and lens-shaped base. Its handle terminates in a head, from which project widely extended ears. The eyes are represented but are not prominent.

A glance at plate 115, *B*, shows a pestle more closely allied to those from Porto Rico than to those from Santo Domingo. The ferrule is absent and the disk thick, even massive. The head, as shown from the side, is separated by a deep groove from the handle.

The typical form of pestles of the Porto Rico-Santo Domingo area, as represented by the preceding specimens, is easily distinguished from that of pestles found in the Lesser Antilles, one of which is

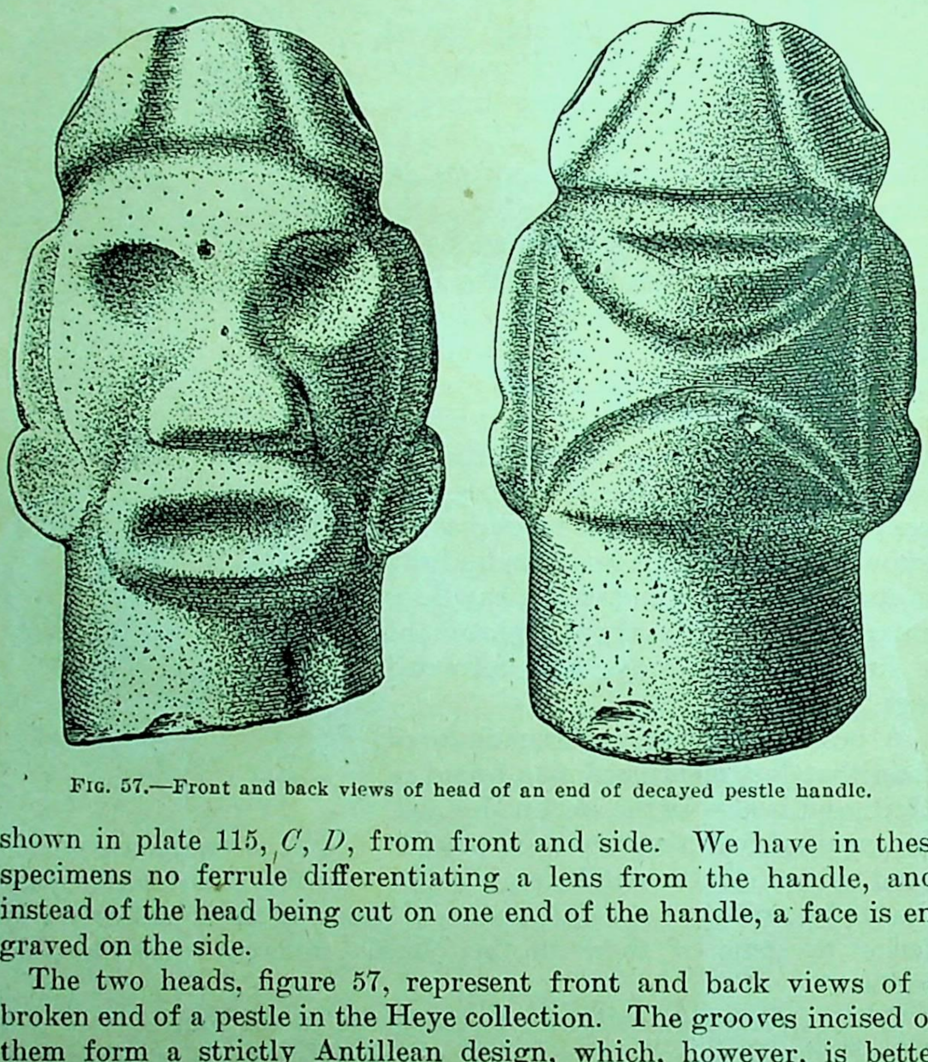
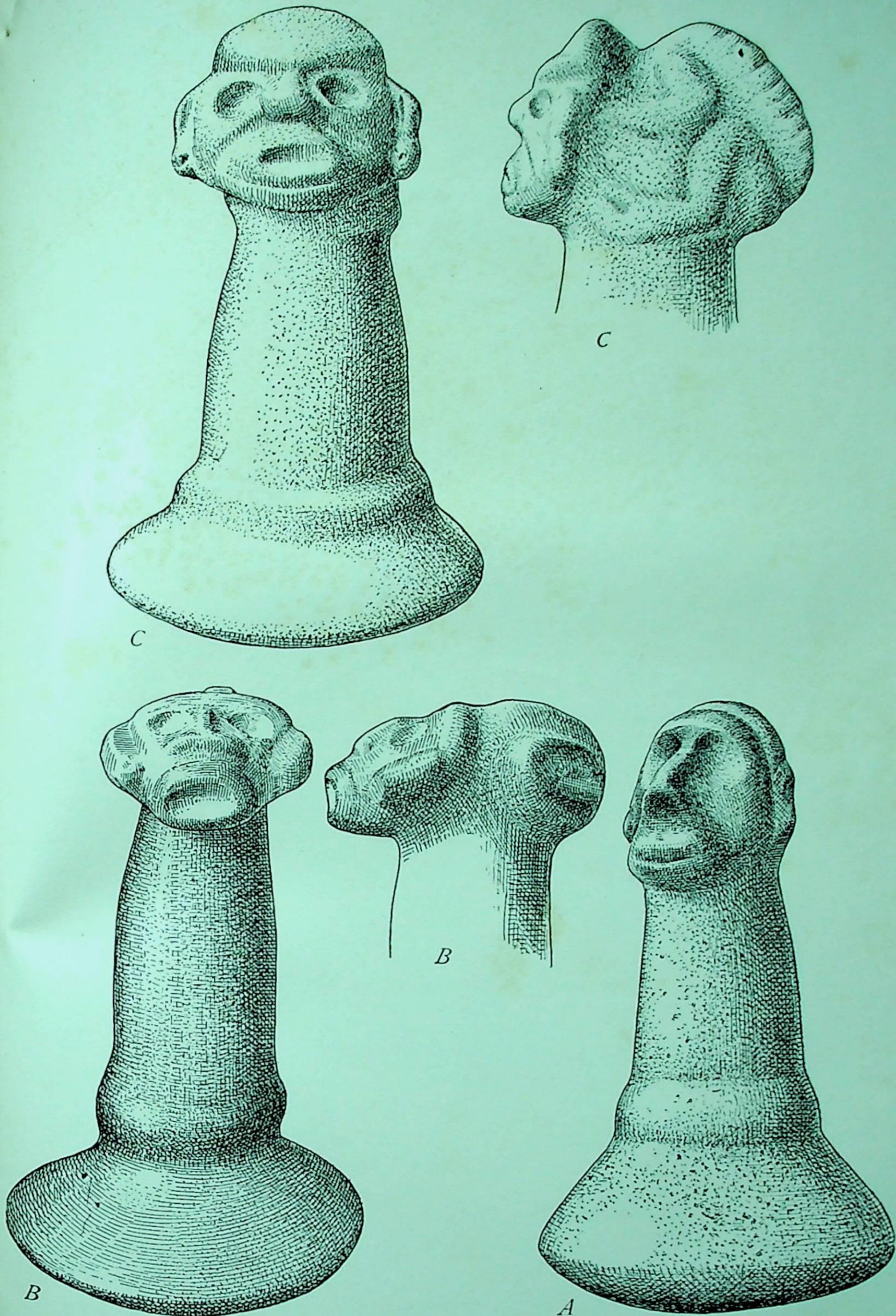


FIG. 57.—Front and back views of head of an end of decayed pestle handle.

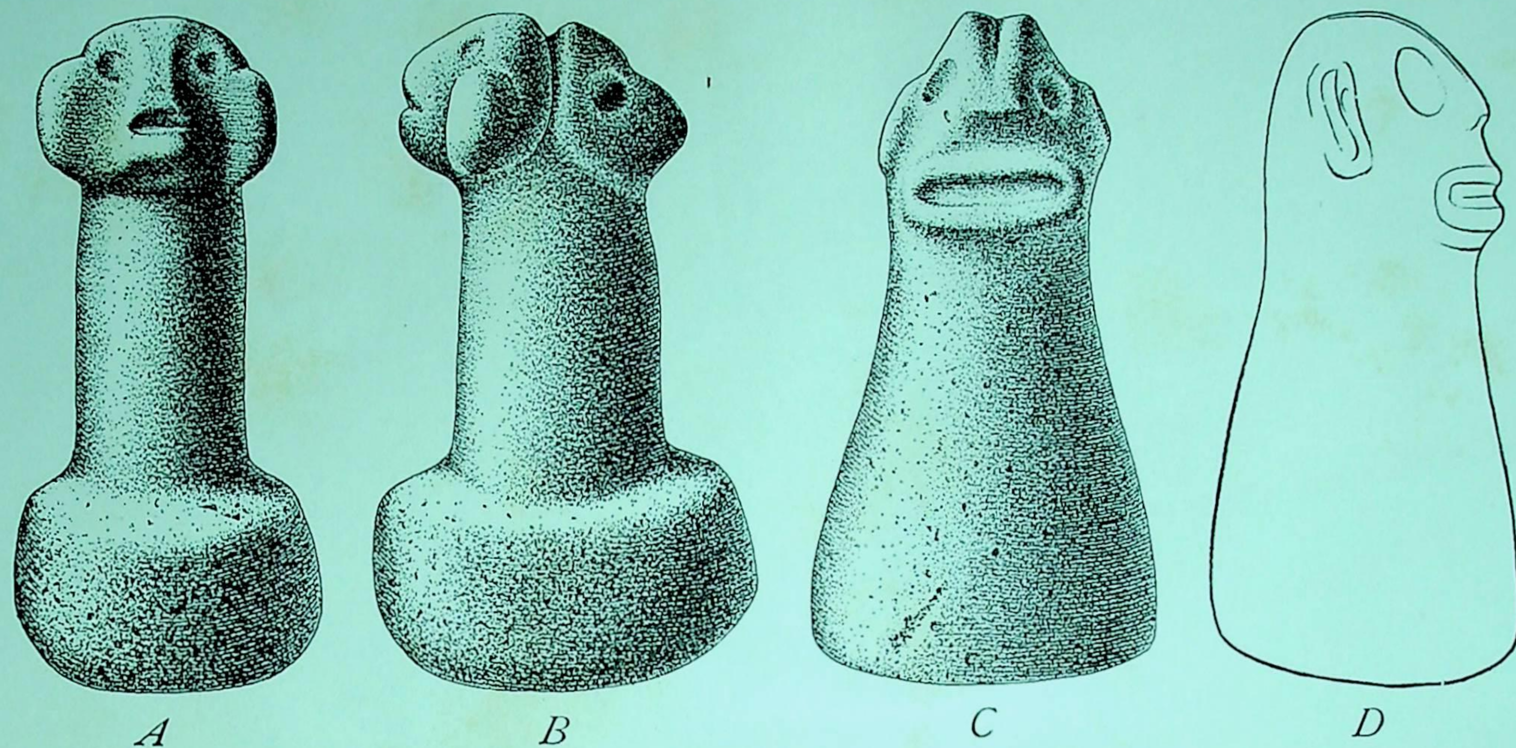
shown in plate 115, *C*, *D*, from front and side. We have in these specimens no ferrule differentiating a lens from the handle, and, instead of the head being cut on one end of the handle, a face is engraved on the side.

The two heads, figure 57, represent front and back views of a broken end of a pestle in the Heye collection. The grooves incised on them form a strictly Antillean design, which, however, is better brought out in the form of the face, ears, and mouth. The object suggests Santo Domingan rather than Porto Rican art, the ends of the pestle handles from the former islands being much more elaborately sculptured than those from the latter island.



PESTLES. *A*, ST. THOMAS; *B*, *C*, HAITI. (BERLIN MUSEUM)

A, 4 inches; *B*, 4.13 inches; *C*, 4.25 inches.



A, *B*, *C*, PESTLES, SANTO DOMINGO; *D*, SIDE VIEW OF *C*,

C, *D*, 6.25 inches.

The fine pestle shown in figure 58 closely resembles those from Santo Domingo. It is elsewhere described and figured in the article, "Further notes on the archeology of Porto Rico,"[77] and is now in the United States National Museum.



FIG. 58.—Stone pestle with head on end of the handle.

This specimen was presented to the Smithsonian Institution by Señor Don Juan Cabezas, of Carolina, Porto Rico, and, according to its label, was plowed up near his estate. It is made of a hard, smoothly polished stone, and is one of the finest examples of pestles from Porto Rico. The handle is elongated, slightly tapering, with a well-carved head at one end and a lens with slightly chipped periphery at the other. This pestle, unfortunately, has been broken at the neck. The handle has no ferrule. The lips, nose, eyes, and ears are well carved in high relief. Each side of an elevation on the crown of the head bears a ring-like protuberance unlike anything in other described pestles from this region. This specimen measures 7½ inches in length.

The lobate stone shown in figure 59 belongs to a type the use of which is unknown. It has certain relationships to the three-pointed type of idol, but its form is quite different, and it may have been used as a rubber.

This object came from Haiti, according to the label in the Museum für Völkerkunde, where the specimen is now on exhibition. I have

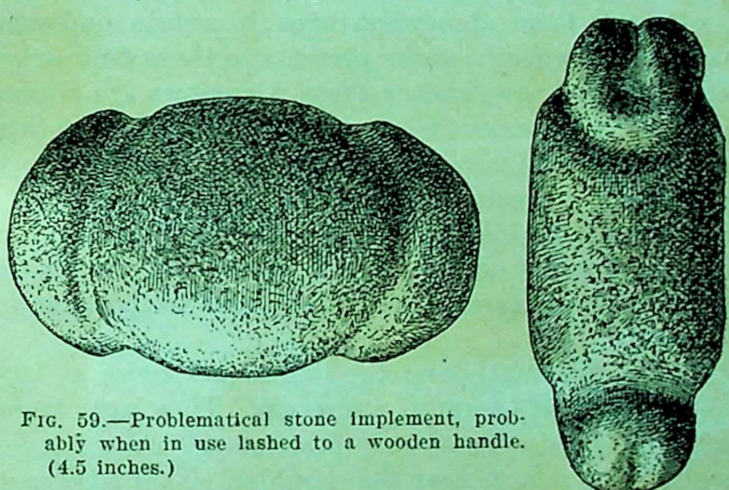


FIG. 59.—Problematical stone implement, probably when in use lashed to a wooden handle. (4.5 inches.)

personally placed it among the grinding implements, not, however, without some misgivings, as it seems to be unique among prehistoric Porto Rican or Antillean objects.

[77] Amer. Anthrop., n. s., vol. x, No. 4. 1908.

ORNAMENTS

The aborigines of both the Greater and the Lesser Antilles prized many kinds of ornaments to decorate their heads and bodies. They are described by contemporaries as a cleanly people, bathing often, and are even said to have built their habitations near the water so they could take frequent baths. They painted, stained, and tattooed their bodies and faces with pigments in elaborate designs and variegated colors. These designs were said to represent in some instances zemis, possibly totems.

The early authors frequently speak also of stone pendants, shell or stone necklaces, gold earrings and gorgets, and other ornaments which they found on their bodies or inserted in nose and ears. Specimens of these objects in the Heye collection have a great variety of form. These are generally made of stone, but are probably of the same form as those made of gold.

Several ornaments here described have a crescentic form that suggests the "caracolis" referred to by Labat[78] and others. The account by Labat is instructive, although none of the prehistoric ornaments were made of other metals than gold.

"The ornaments most valued by them are caracoli, which are certain plates of metal purer than brass and less valuable than silver. It has the property of neither tarnishing nor rusting. This causes the savages to hold it in great estimation. Only the chiefs or their children wear them. It has been thought that the caracoli came from the island of Hispaniola, otherwise called St. Domingo, but the savages assert to the contrary and say they trade for them with their enemies, who call them alouagues through certain understandings they have among them who make presents to those from whom they receive things. To know whence these Alouagues are obtained is a difficulty. They say the gods whom they adore, who make their home in frowning rocks, in inaccessible mountains, give them to them so that they may have greater reverence for this sovereignty. If true I believe, however, that it may be that the devil abuses the feeble minds of these ignorant ones by this artifice. However that may be, these caracoli are very rare amongst them, and are brought from the mainland.

"They are of different sizes; the largest are twice as large as a piastre. They have the form of a crescent. They wear them at the neck incased in wood. They wear bracelets of white beads, not at the wrist, but on the arm near the shoulder. They also wear them on the legs in place of garters. The women dress their hair like the men do but do not ever use feathers stuck in the hair and never wear a crown. They color themselves with arnotto as the men do, also wear bracelets as they do, but at the wrist and not on the upper

[78] Nouveau Voyage aux Isles de l'Amerique. Paris, 1742.

arm. They carry necklaces of different kinds of stones, such as crystal, amber, greenstone, and beads. I have seen them with over six pounds hung at the neck. In their assemblies they wear belts of plaited cotton and chains of white beads. They hang to the different parts of this belt little bundles of six or seven chains of beads of a finger's length, and a large number of little bells, so as to make more noise in dancing. All the women and girls, excepting the slaves, wear from their earliest youth a certain half stocking which grasps the leg from the ankle to the calf of the leg, and another between the calf of the leg and the knee. At the top of the cotton stocking there is attached a kind of enlargement larger than a plate, plaited from reed and cotton, and a smaller one at the bottom than at the top, so that these two enlargements press on the calf of the leg in such a manner and press out the calf that it looks like a Holland cheese between two plates.

"The caracolis worn by the savages are made in the shape of crescents, according to the part of the body where worn. Ordinarily they are worn one at each ear. From one end of the horn to the other is about 2½ inches. A little chain with a hook is held attached to the ear. Where they have no chains (for all do not have them) they are held by a cotton thread which is passed around the center of the crescent, of which the weight is like that of a piece of 15 sols (halfpennies). They wear another of the same size at the space between the nose, which strikes on their mouth. The lower part of the underlip is pierced, where they attach a fourth caracoli which is a third larger than the preceding ones. Finally, they have a fifth one, which has an opening of 6 or 7 inches, which is incased in a little black wooden board centering in the crescent, falling on their breast, being attached at the neck by a cord. I leave it to be imagined what resplendence this gives to a man's head, and if it does not resemble a mule with his plates.

"When they are not wearing these caracolis they are careful to fill the holes in their ears, in the nose, and in the lips with little sticks to prevent them closing up. At such times they resemble hogs that have had pins to prevent them rooting up the ground. Sometimes they wear greenstones in the ears and in the lip, and when they have neither greenstones nor little sticks, nor caracolis, they put in them the feathers of parrots or red, blue, or yellow ("aras") paroquettes, which give them mustaches 10 or a dozen inches long on both sides of the mouth, both above and below, without counting that which they have in their ears, which gives them the most pleasant countenance in the world."[82]

The Porto Ricans wore strings of gilded beads (fig. 60), crescentic stones, and earrings of shell or bone. The Heye collection, how-

[82] Op. cit., v. II, p. 85.

ever, contains no specimen of a gold ornament; but pendants made of shell carved into amulets have been described by one or two authors. Beads made of bone, shell, and stone are known from pictures of Porto Rican Indians in early writings. None of the gold beads of prehistoric times escaped the cupidity of Europeans, and those given them by the natives found their way into the melting pot. Beads made of stone, however, exist in several collections. Their form is cylindrical rather than globular, perforated, and often having a second hole at right angles for insertion of feathers. A necklace made of these beads had the appearance of a feather collar, as described by early authors. These stone beads are sometimes cut in the forms of animals or human beings. They were strung on a string side by side for a collar, similar to the necklaces figured by

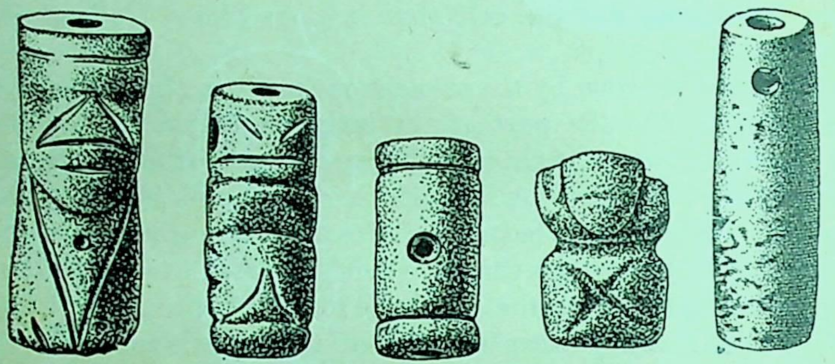


FIG. 60.—Various forms of stone beads, plain and decorated.

Giglioli,[83] Andree,[84] and other ethnologists. These ornaments must, however, be distinguished from amulets or zemis, worn on the foreheads when they went into battle.

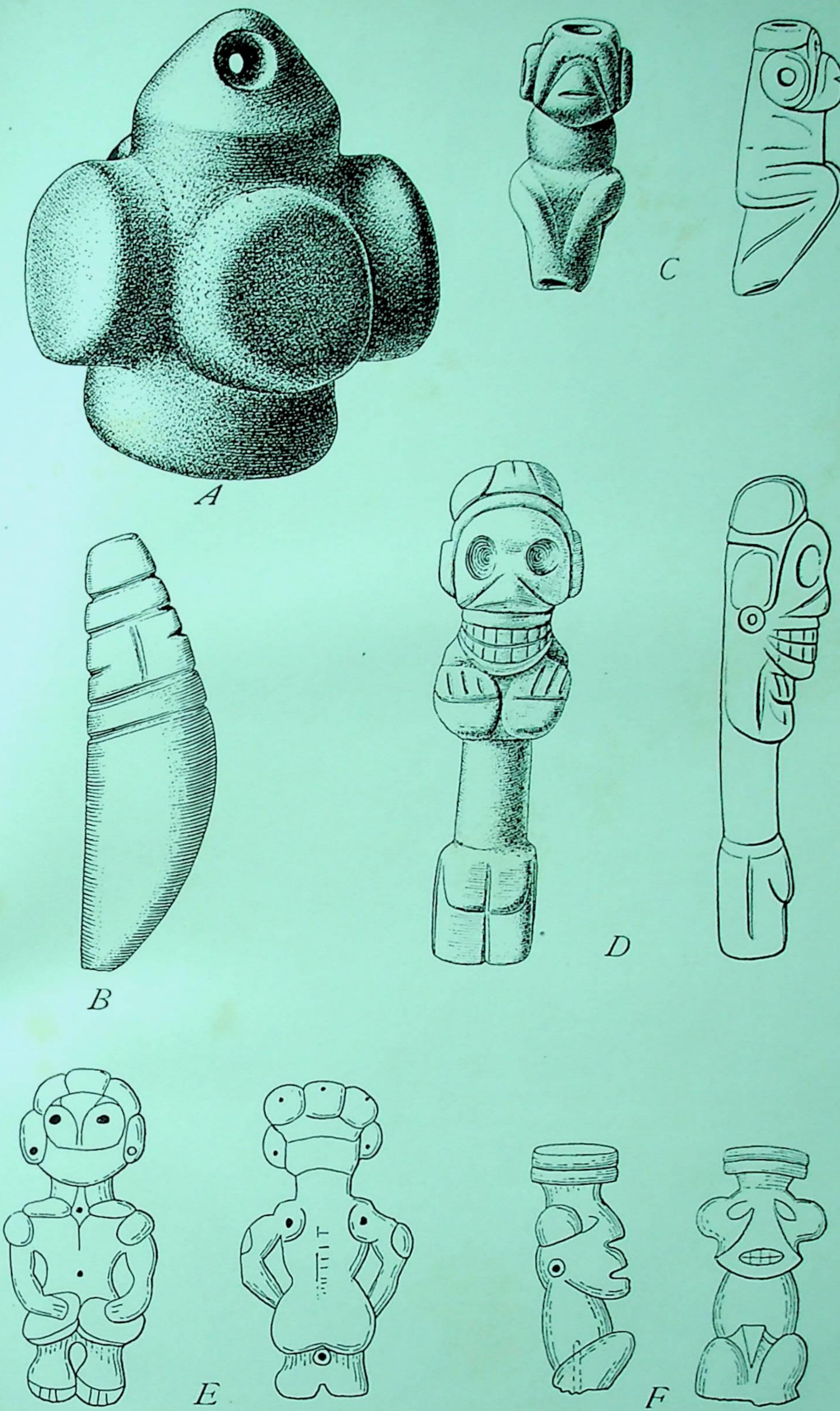
In the Berlin Museum there are 40 shell sticks of brown and white color of a similar form.

In several of the early accounts it is stated that every medicine man among the Carib carried a zemi, by which he was known. In some cases this was worn on a necklace, in other instances attached to his forehead, and still other forms were painted or tattooed on the body. These and other facts lead me to believe that in a way we may regard the zemi as a totemic symbol, representing the divinized ancestor in much the same way as the Katcina among the Hopi.

STONE PENDANT

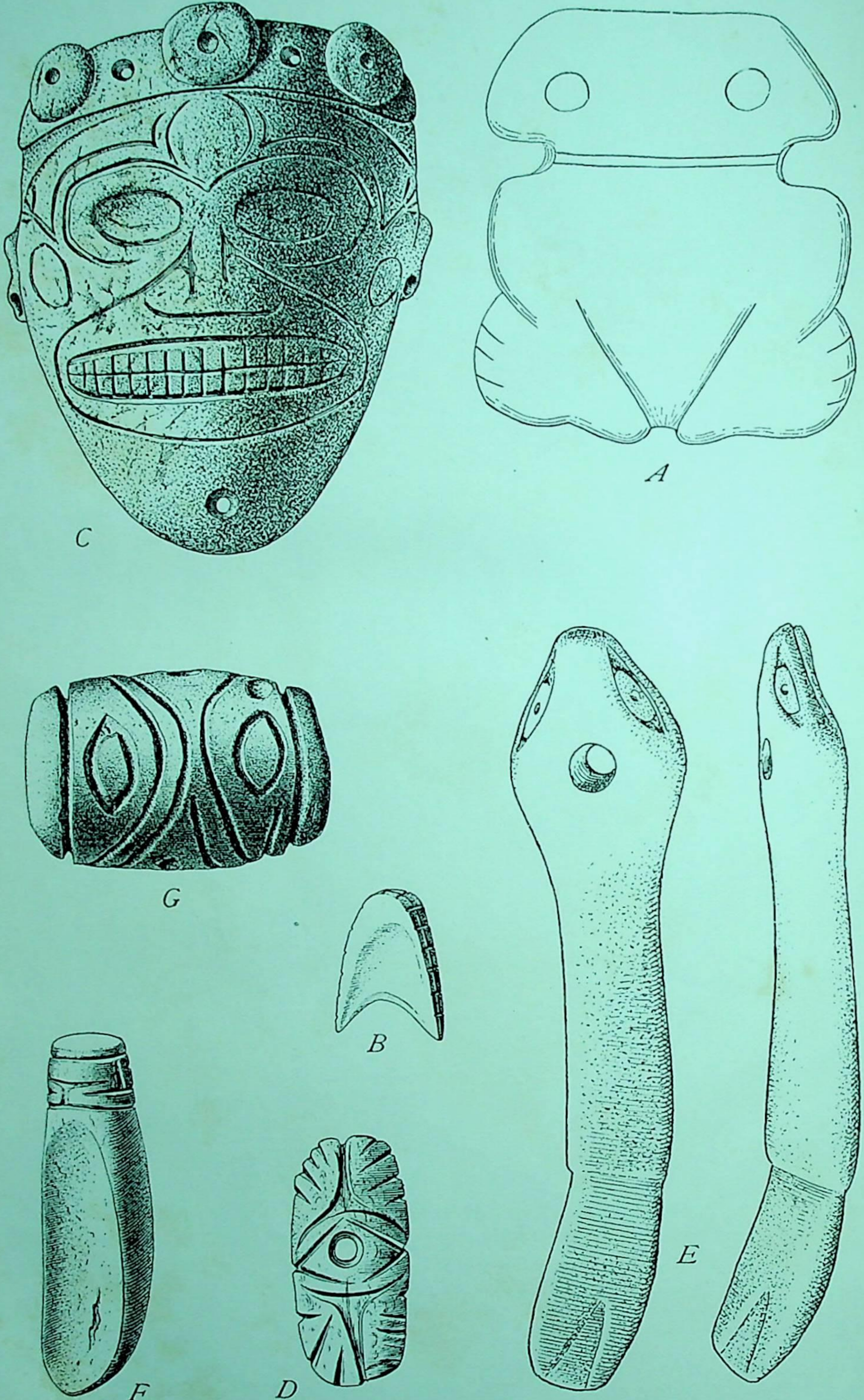
There is in the Heye collection a unique stone object, plate 116, *A*, of unknown use, from Santo Domingo, which is provisionally called a pendant and supposed to have been worn as an ornament. It is made of black stone and has the form of a cone pointed at one end and flattened at the opposite, or base, recalling a grinding stone. The conical end is, however, perforated and the hole beveled on

[83] Rept. XVIth Int. Cong. of Amer., pt. 2, p. 316.
[84] Baessler-Archiv, Band IV, pp. 31–32, Leipzig, 1914.



A, UNIDENTIFIED STONE OBJECT; *B*, TOOTH-SHAPED OBJECT; *C, D, E, F*, AMULETS

A, 2.88 inches; *B*, 2.7 inches; *C*, 2 inches; *D*, 3.1 inches; *E*, 2.06 inches; *F*, 1.88 inches.



A, STONE AMULET; *B, C, D, E, F,* SHELL AND BONE OBJECTS;
G, POTTERY STAMP. SANTO DOMINGO.

A, 3 inches; *D*, enlarged; *E*, 5.5 inches; *F*, 2.75 inches; *G*, 2.4 inches.

each side. An exceptional feature of this specimen is the four flat circular disks or knobs, one in each quadrant, attached to the sides. The bases of attachment of these disks adjoin, their diameter being about half the whole length of the object. This unique object is well polished and may be considered one of the finest specimens of Antillean stonework.

AMULETS

One of the shell amulets in the Heye collection is the best made of these objects known to the author. It is represented in plate 116, *D*, and while in general features it resembles fetishes or amulets figured elsewhere,[85] it has certain features that are characteristic. The head of this amulet is well cut, showing mouth with rows of teeth, eyes, nose, and crest on the forehead. The forearms are fluted in such a way as to bring the hands below the chin with palms pointed outward. The body is elongated into a round shaft, which terminates in an angular, cubical enlargement, to which the posterior appendages, the parts of which are not clearly indicated, are attached. The back of the head is perforated from side to side, on a level with the nose, indicating that the object was formerly suspended. The general form of this object and its perforations leads me to regard it a pendant worn with beads as a necklace about the neck.

Several amulets (pl. 116, *C*) from Santo Domingo resemble those the author has already figured, but one or two are better examples and have characteristic features. The specimen shown from face and back in plate 116, *E*, resembles that on plate LXXXVII of my Porto Rico memoir.[85] It has a perforation for suspension, which is shown in the figures.

In another amulet (pl. 116, *F*) there is a disk-like addition to the head, recalling the tabla or table added to the heads of wooden images. This table addition appears to be typical of several specimens, all from Santo Domingo. The ear projections are prominent features in several of these amulets.

One of the most remarkable amulets from Guadeloupe is now in the Vienna Museum, and was described by Prof. Franz Heger.[85a]

The three views given in figure 61 show the form of this amulet from the front, back, and side. The exceptional feature is the existence of four constrictions dividing the body of the specimen into five regions and imparting to it the form of a segmented animal like a worm or centipede. Each of the body segments has markings on the sides that might be mistaken for legs. They have the form of simple grooves, sometimes, as in the first segment, bifurcated. This likeness to a centipede is enhanced by the form of a proboscis-like appendage to the head and the form of eyes and mouth. The relative

[85] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn.

[85a] Aus den Sammlungen der anthropologisch-ethnographischen Abtheilung des k. k. naturhistorischen Hofmuseums in Wien, Mittheil. der Anthrop Gesell. in Wien, Bd. IX, p. 132, pl. I, Wien, 1880.

position of the perforation by which this amulet was suspended is the same as those of other frontal amulets, which leads the author to include the specimen in this group. It is recorded that an amulet of a frog was found with a human skeleton on Guadeloupe.

The museum of Prague, Bohemia, is said to have one of the finest amulets from the West Indies. The author knows of it from a cast in the Berlin Museum. This specimen (pl. 117, *A*) is made of a greenstone, probably jadeite, and has the form of a frog, the head and hind legs being cut in low relief. The perforations by which it was suspended appear in a view from the underside. The smooth surface on this side, combined with peculiar perforations so like those of other amulets, would indicate that it might have been worn on the forehead by warriors when they went into battle, as described by Gomara and Peter Martyr.

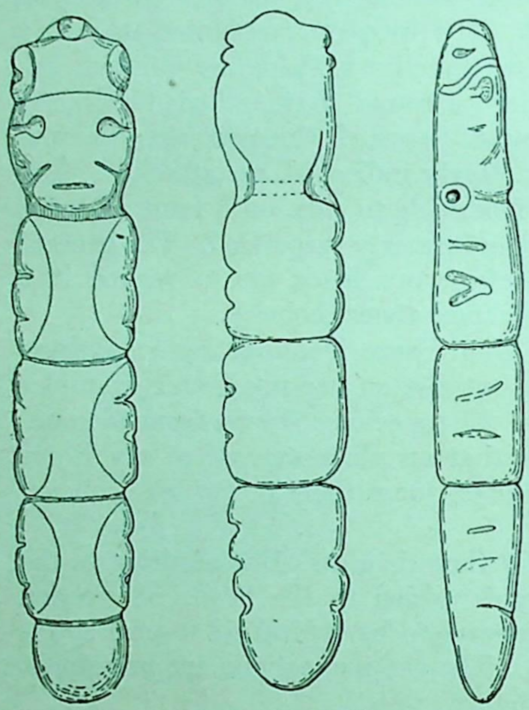


FIG. 61.—Amulet in Vienna Museum. Shown from front, back, and side. (4.38 inches.)

BONE OBJECTS

The problematical object, plate 117, *E*, preserved in the Berlin Museum, is made of bone, one end having a snake's head, the opposite extremity being slightly flattened and bifurcated. A perforation through the middle of the head would appear to indicate that it was worn on the body, possibly as an ornament suspended about the neck. The side view indicates that a section of it is round or oval, and that the flattened spatulate extremity is separated by a shoulder from the body and head. It is not unlikely that this specimen may have been used as a spatula in modeling, the extremity ornamented with a head being held in the hand for that purpose, and the flattened end applied to the soft clay.

Plate 117, *F*, shows an unusual spoon-like object made of bone, a unique form in the Heye collection. One surface is convex, the concavity on the opposite side or bowl of the specimen being decorated with incised lines on one end. Further resemblance to a spoon is lost from the absence of a handle, the end near the bowl on which the ornamentation appears being cut off sharply and replaced by a smooth surface.

A bone swallow stick was found by the late Theodoor de Booy in the Virgin Islands, and is now in the Museum of the American Indian (Heye Foundation). The eyes and mouth are inlaid with shell.

SHELL OBJECTS

The shell mask (pl. 117, *C*) in the Heye collection is almost identical with that figured by the author in his Aborigines of Porto Rico, but is much better carved. It was purchased by the author from Señor Seiyo, of Arecibo. As in the Meriño specimen, there are two holes near the rim for suspension by a band. These holes alternate with round elevations. There is also a perforation in the chin—a feature absent in the Meriño specimen. On each cheek of the Heye specimen there is an engraved circle, recalling the elevations or wens on cheeks of the stone head in the Berlin Museum previously referred to. The curved incised line on the forehead of the Heye specimen ends in three extensions, recalling a hand with fingers. The anomalous position of these appendages, which do not occur in the Meriño specimens, is an objection to our identification of this as a fore limb.

The Heye collection has an imitation of teeth made of shell. This object (pl. 117, *B*) was probably formerly inlaid in a wooden figure of some West Indian god and represented its teeth. It has been suggested that these imitation teeth were used as an amulet, either suspended around the neck or carried with other fetishes in a special sack for that purpose.[86]

The object, the carved surface of which is shown in plate 117, *D*, is made of shell and is perforated in the middle.

CLAY OBJECTS

Disks made of clay or burnt earthenware often have incised figures upon them, suggesting that they were used as stamps for pottery or fabrics. These disks also, in some instances, bear knobs forming handles fashioned in the form of animals. One of these stamps, with the knob broken but the incised legs of an animal still shown, is figured in my memoir on the Aborigines of Porto Rico and Neighboring Islands.[87] The incised designs on the surface of this disk represent the legs of a frog, turtle, or other animal. The body and head, formerly in relief, have been broken off, but the author has seen specimens from Santo Domingo in which the whole body of a frog is represented on one of these stamps.

CLAY CYLINDERS

In essential features the clay cylinder (pl. 117, *G*) is unlike other objects of the same type elsewhere described; the figure incised on its

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[86] Possibly this object was tied to a belt in front, as recorded in older histories.
[87] Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. LXXXVI.

surface is characteristic. This cylinder was probably used as a roller for stamping decorations on pottery or fabrics, since identical designs to those upon its surface are on the surface of earthenware vessels. Similar cylinders have been collected on other islands of the Santo Domingo-Porto Rico area, and have been reported likewise from the Lesser Antilles, where, however, they are generally replaced by disks with a knob or handle in the middle. These latter apparently serve the same purpose as the cylinders, although that has not yet been definitely determined. Another use to which these cylinders and circular stamps may have been put is suggested by a study of certain tribes of Venezuela and Guiana who are said to use similar objects in stamping patterns on woven fabrics. Woven prehistoric Antillean fabrics are rare, but a few show evidences of repetition of the same designs as if stamped with cylindrical rollers or flat tablets.

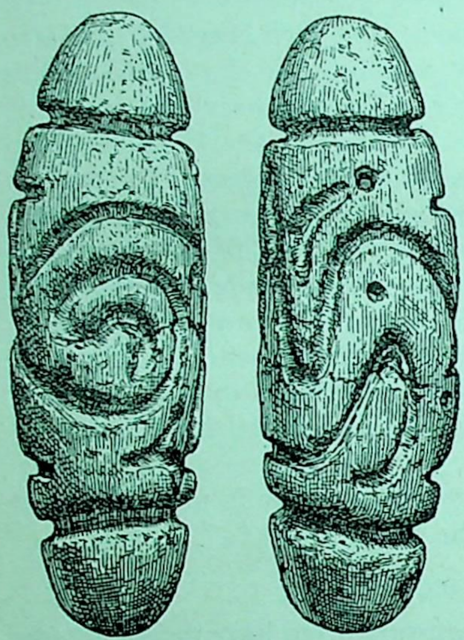


FIG. 62.—Clay stamp or die with incised meander.

Circular stamps with central knobs are not rare in some of the Antillean shell mounds and village trash heaps. Some of these from Santo Domingo caves, as shown in the collections obtained by De Booy, are ornamented with figures in relief. Other stamps have slender handles projecting from the middle of each end of the cylinder. These cylinders sometimes taper at each end (fig. 62), imparting an ovate form to the object. One of these is elsewhere figured.[88]

POTTERY

The pottery from the Haiti-Porto Rican region is rather coarse as compared with that of the Lesser Antilles, especially Trinidad and St. Kitts. It is, as a rule, thick, its surface unpainted, but decorated with incised lines, ridges, and raised figures that appear to have been added after the rest of the bowl had been fashioned. The incised lines are generally rectilinear, but are sometimes spiral, in the former case being arranged in triangular and in the latter in circular figures. The spaces about the center, which is occupied by a

[88] Notes on Archaeology of Porto Rico. Amer. Anthrop., n. s., vol. x, no. 4, 1908.

circle or dots, are well filled. Straight lines often end in pits, which may be separated from the ends of the lines. They were apparently made with a pointed implement.

Food bowls are not uncommon, their decoration being commonly a modification of lugs, or handles, into heads, which when broken off are often called idols by the country people. The margins of the openings are not turned outward or upward, but are without modifications. There are rarely necks to the bowls or feet or bases for them to stand upon.

The earliest described whole piece of pottery from Porto Rico was figured in 1907 in the article on the Aborigines of Porto Rico. Several additional specimens are now known in different collections. As shown elsewhere, there are two distinct types of Porto Rican pottery—one from caves (Cueva de los Golondrinos, not far from Arecibo); the other from the shell heaps and ball courts (batey). The vessel [88a] from the mound near the ball court at Utuado is of rough ware, the handles slender, not as broad as those from the caves. If the reputed provenance of specimens can be relied upon, the pottery from inland caves differs from that of the caves alongshore—a condition that might be expected if caves were at times inhabited and later used for mortuary purposes. The pottery from Porto Rico is quite different from that found in middens of the Lesser Antilles; the incised or relief decorations are not the same. It is, in fact, possible to differentiate art designs from the different islands, although there is a general similarity in pottery forms from Trinidad to Cuba, indicating a like cultural condition of the prehistoric inhabitants, the modifications being largely due to environmental conditions, character of clay, and pigments used in decorating.

The most abundant fragments of pottery from Porto Rico and Santo Domingo are lugs or handles of bowls and vases made in the form of human and animal heads. To consider all these fragments in any collection would be a great undertaking, and many such heads have been figured by students of collections from these islands.

While the pottery of Porto Rico and Santo Domingo in general characters resembles that of the other West Indies, it can be readily distinguished from that of the St. Kitts, St. Vincent, Barbados, and Trinidad areas. Many of the specimens in the Heye collection are fragmentary and are more or less worn on the surface by use, but as a rule they exhibit no evidence of a gloss which they formerly had. Even these fragments indicate that the ancient islanders were excellent potters, showing superior art and workmanship. As in the other islands, handles of vessels in the form of clay heads predominate, indicating that effigy bowls, vases, and jars were very numerous.

[88a] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. LXXVII, *c*; the character of cave pottery is shown in pl. LXXIII.

The flat open-mouthed bowl (pl. 118, *A*) is destitute of lugs or relief figures and has the base convex, the outer surface being slightly inclined inward. This upper region is decorated with incised patterns, in which circles, parallel lines, crescents, and triangles may be easily recognized. Some of these lines are enlarged at their extremities into pits, and the decoration is also helped out by similar pits, free from the end of the incised lines. The figures engraved on the upper zone of the bowl recall those on the decorated panels of certain stone collars from Porto Rico and possibly are the same symbols.

One of the best objects made of burnt clay from Santo Domingo in the Heye collection is shown in plate 118, *B*. This specimen is in fact one of the most beautiful examples of Antillean pottery yet collected. Its general form is oval, the opening being about half the longer axis, the rim or lip of the orifice without decoration. Although the surface is worn, it shows evidence of decoration with incised lines which girt the vessel or are arranged in such a way as to indicate organs of the animal intended by the effigy. The head stands out in bold relief from the body of the vessel, from which it is separated by a well-developed neck. This head recalls in some features those of certain three-pointed idols already elsewhere figured. The representation of the fore limbs consists of four short parallel incised lines situated on each side not far from the junction of the neck and bowl. There is a triangular figure on each side, but not elevated above the surface of the jars. A similar triangular figure occupies a like relationship to each of the posterior appendages. The hind legs are represented by two club-shaped appendages which arise on each side near the pole of the bowl, opposite the head. These posterior limbs are represented in such a manner that the soles of their feet face outward toward the observer—a common feature in Antillean art. The sole of the foot is triangular in shape and has a slightly curved border and indications of four toes.

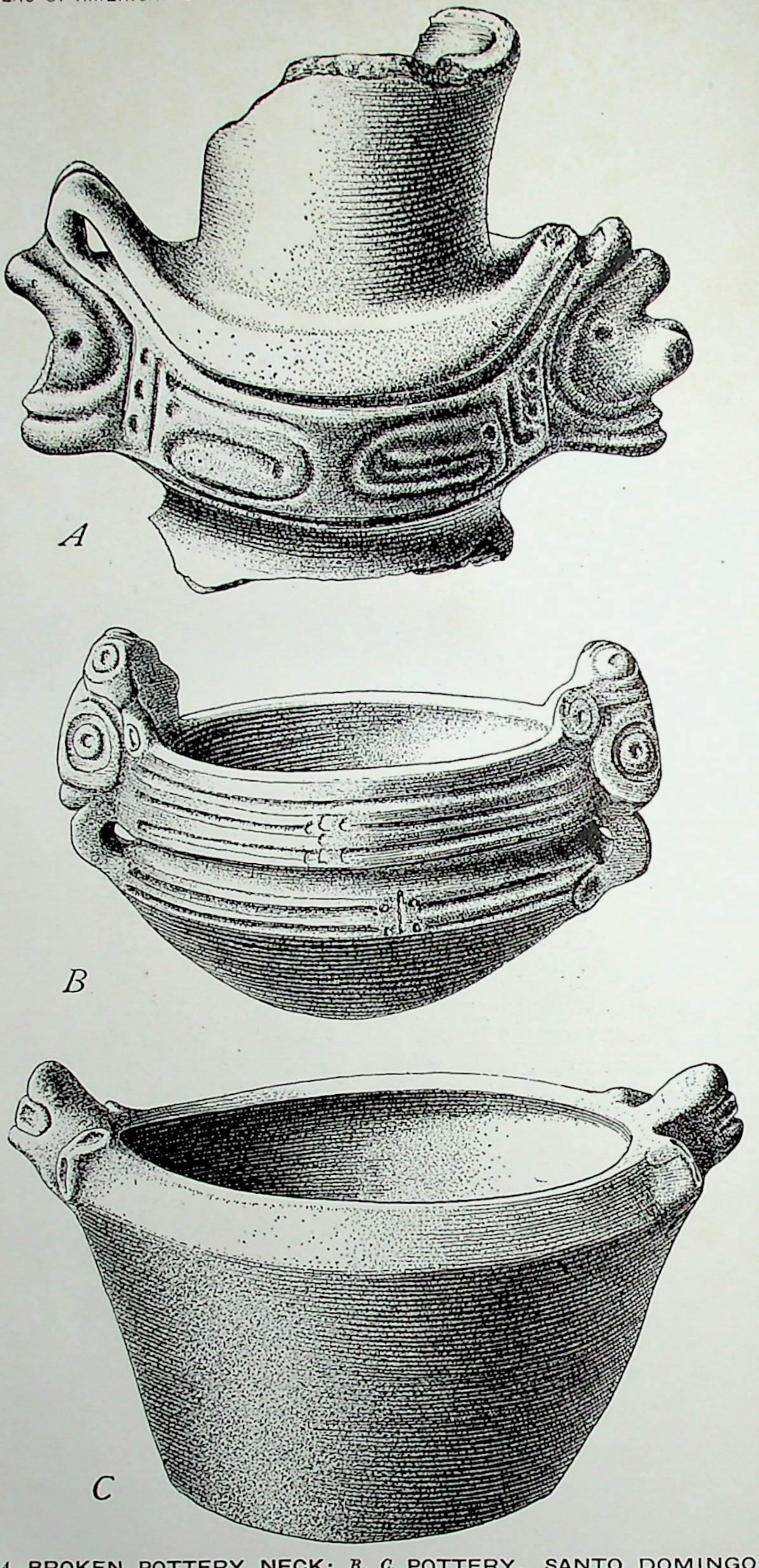
The leg itself is short and stumpy, without joints. Its general form and situation as regards the remainder of the effigy recalls the flippers of a turtle or leg of a lizard—an identification not opposed by the general shape of the head and the existence of nostrils, so common in clay representations of reptilian heads. The tail is elongated, round, and enlarged at the extremity into a button, which is further marked with parallel incisions above. Around the enlarged base of its attachment there are two ferrules or raised sides separated by circular grooves, from the middle of which the tail seems to emerge. The existence of this tail favors a reptilian or turtle identification of the vase. It is a feature unknown in effigy forms of bowls and other pottery objects.

The bowl shown in plate 118, *C*, belongs to the Museum für Völkerkunde in Berlin, to which it was brought from Santo Domingo. It



POTTERY, *A*, *B*, PORTO RICO; *C*, SANTO DOMINGO

A, *B*, 10 inches.



A, BROKEN POTTERY NECK; *B*, *C*, POTTERY. SANTO DOMINGO

B, 5.4 inches; *C*, 6 inches.



SEATED STONE FIGURE, SANTO DOMINGO

has a globular form with orifice wide open and lugs in relief in the decorated zone. These vertical handles are perforated, but as the openings are too small for insertion of the fingers it would seem that the bowl was once suspended by strings in these lugs. The decoration is confined to the upper half and consists of alternating rectilinear parallel lines, four of which occur in the horizontal and three in the vertical areas. The lip opening is slightly bent outward.

A small bowl (pl. 119, *B*) in the Heye collection is decorated with two heads, placed opposite each other, in relief, recalling some of those from the Erin Bay midden in Trinidad, British West Indies. It has a convex base, and the opening is only slightly less than the diameter of the bowl. The surface decoration consists of parallel grooves, whose extremities are separated by the heads in relief or lines at right angles to the same. There are several pits near the ends of the rectilinear grooves—a feature characteristic of pottery from Santo Domingo and Porto Rico. The heads are attached in high relief on the two opposite sides of the bowl, the rim flares outward, extending over a deep groove or neck that separates two areas of incised lines that form the main decoration of the outer surface of the vessel. The eyes and ears are represented by circular rings in low relief. The back of the head corresponds in curvature with the inner surface of the bowl.

The bowl shown in plate 119, *C*, from the Heye collection from Santo Domingo, has sloping sides, with a flat base. The exterior bends inward to form an undecorated lip, which also serves as the place of attachment of two heads, placed opposite each other, projecting slightly outward and upward from the margin of the opening and forming lugs or handles. The eyes and other organs of the head take the form of dumb-bell appendages to the rim and are situated one on each side of the handle.

In an account of his trip to Santo Domingo Mr. De Booy added several instructive forms of pottery to those already known from that island, thus increasing our knowledge of the ceramics of the Porto Rico-Santo Domingo area. Several of these water jars have nozzles ornamented with human faces and other organs as elsewhere figured and described.[89] The nozzles of these specimens resemble those on vases in the United States National Museum purchased from Archbishop Meriño and figured in my Aborigines of Porto Rico.

The suggestion that these flask-shaped necks contained charcoal and were used for filtering water is unsatisfactory, but they may have been used in filtering the fermented juice from some plant, as the yuca, a theory that can hardly be looked upon as more than a suggestion.

[89] Aborigines of Porto Rico, Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pl. lxxx, a, a', a''.

The additions made to the Heye Museum by Mr. De Booy are very important, as they belong to a few unrecorded types. The number of whole pieces from Santo Domingo in the Heye Museum is greater than in any other West Indian collection. Many have a great value, because they were found in caves, the floors of which are now submerged.

One of the most unique forms of Porto Rican pottery yet undescribed is a bowl in the Museum für Völkerkunde, in Berlin, said to have been found in one of the caves on the left side of the road from Arecibo to Utuado. This bowl has a plain surface without relief decorations, its upper zone having two encircling incised grooves inclosing incised figures, placed horizontally and vertically, as shown in figure 63.

In figure *A*, plate 119, from a specimen in the Heye collection, we have a very elaborate neck, to which is added heads in relief, all that remains of a large vase, the body of which has been lost. Its style is Santo Domingan rather than Porto Rican. The well-preserved specimens of an exceptional type of pottery from prehistoric Porto Rico figured by Dr. Haeberlin should be mentioned. One of these specimens is particularly instructive as having a raised base, which feature, although known for many years[90] from the Lesser Antilles, has not previously been recorded from Porto Rico, the bowls and vases hitherto described from that island having a rounded or flattened base.

CUBA

The island of Cuba, the largest in the Greater Antilles, has up to a few years since yielded a smaller number of archeological remains than Porto Rico, Jamaica, or Haiti. This is due to want of exploration, as shown by the large collections made by Mr. M. R. Harrington, of the Museum of the American Indian (Heye Foundation), who has made extensive collections in the island since 1914 and is preparing a memoir on this subject.

The eastern end of Cuba shows evidences of a higher culture than the western, as if affected more by influences from Haiti and Porto Rico. This is especially seen in pottery obtained from caves of the eastern end. Apparently the western extremity, toward Yucatan, which lies nearer to the continent than any of the Greater Antilles, was inhabited by a race of low comparative culture who spoke a different language from the inhabitants of the eastern extremity.

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[90] One of these bowls with basal ring from Trinidad is figured in Aborigines of Porto Rico, Twenty-fifth Ann. Rept., Bur. Amer. Ethn., pl. LXXXV.

The archeology of Cuba has been studied by several scientific men, and we have valuable contributions by Morales, Dr. Montané,[91] Poey, Carlos Torre, Brinton, and others. The author published a few years ago the following article which adds a few new observations

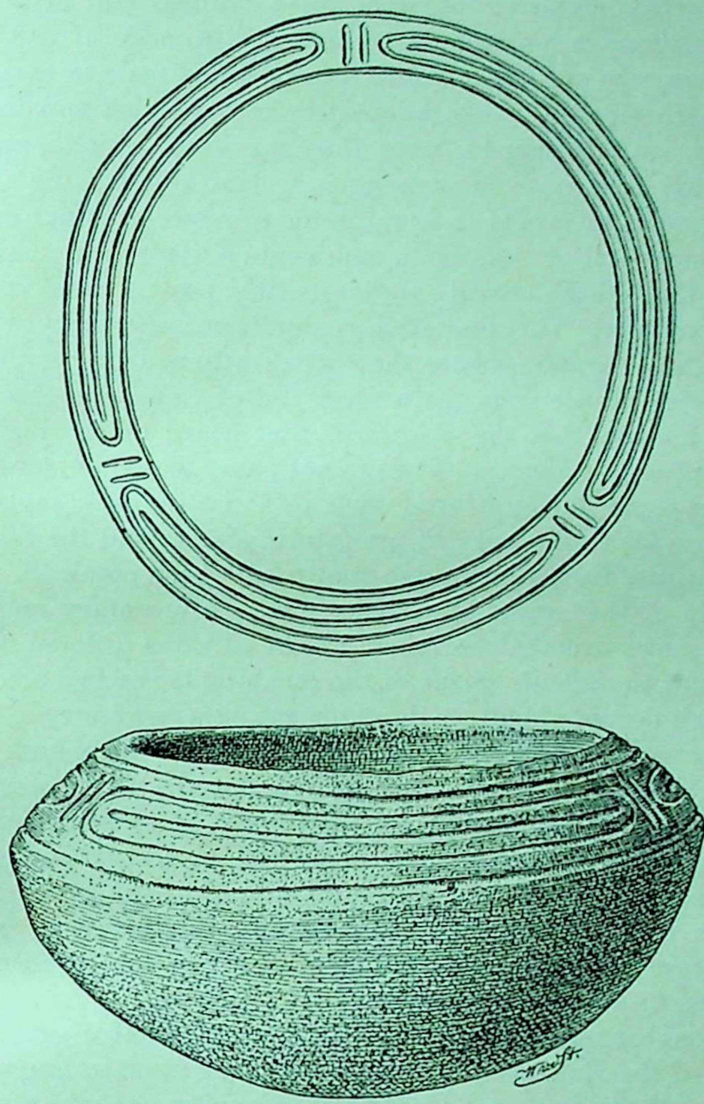


FIG. 63.—Bowl with incised decoration. (9 inches.)

on a subject which promises great results after systematic exploration.

[91] The article "L'Homme de Sancti Spiritus (Ile de Cuba)" (Extrait du Compte Rendu du xiii Congres international d'Anthropologié et d'Archeologie prehistoriques, Session de Monaca, 1906) contains valuable information on the archeological objects in the University of Habana. For the Indians of Cuba see Culin, in Bull. Free Mus. of Sci. and Art, vol. III, no. 4, 1902.

Prehistoric Culture of Cuba [92]

Although the early Spanish writers ascribed to Cuba a large aboriginal population, they recorded very little regarding racial differences of natives in different parts of the island. The majority, considering the inhabitants as homogeneous in culture, paid little attention to variations in language or to diversity in mode of life, while later authors, who are few in number, have added little to earlier accounts. Archeological investigations, to which we must now look for more light on this subject, have thus far been limited, and our museums are very poor in prehistoric Cuban objects. Few specimens are known to have been found in the province of Pinar del Rio, or the western end of the island, and local collectors are unanimous in saying that all the aboriginal objects they possess came from the eastern extremity. This limitation is significant, especially when we consider that Yucatan, where the natives attained high culture, is such a short distance from the western end of Cuba, and that it was from the Cubans that the Spaniards first heard of the highly developed Indians of Mexico. The present paper, based on studies and collections made during a brief visit to Cuba in 1904, suggests an explanation for this paucity of prehistoric objects and the limitation of the localities from which those known have been obtained.

A study of the available evidence, both documentary and archeological, shows that the aboriginal culture of Cuba differed in different parts of the island. Some of the inhabitants reached a comparatively high degree of culture development, others were rude savages. The former had polished stone implements and knew how to make the fertile soil yield their food supply, but the latter were naked cave dwellers, who gathered for food roots or tropical fruits that grow spontaneously in the rich soil of the island. There were also fishermen, who subsisted on a natural supply of the products of the sea when their habitat made it possible. Contact with people of high culture had raised them somewhat above the dwellers in the mountains to whom they were related.

Columbus commented on the resemblance of the aborigines of Cuba to those of the Bahamas, regarding them the same in language and customs; but this supposed identification was true only in a very general way. The diary of the first voyage of the discoverer, as found in the writings of Las Casas, affords no direct evidence of a more primitive race in Cuba, although it suggests the theory that such a people existed.

Historians do not agree as to the first landfall of Columbus in Cuba, but no one doubts that it was somewhere on the northern shore of what is now Santiago Province. At whatever point he landed he

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[92] Reprinted from Amer. Anthrop., n. s., vol. 6, pp. 585–598, 1904.

found the natives living in houses, making use of hammocks of cotton and palm fibers, and possessing stone idols and carved wooden masks. Columbus learned from them of a ruler, whom he called king, of a country to the south, which was rich in gold. Nothing is said in his diary of the natives to the west of the landfall, but he sailed westward a few leagues along the northern shore without finding people worthy of special mention. Later, turning back, he rounded Cape Maysi and examined a section of the southern coast, but was not attracted farther toward the west. On this side of Cuba he again heard of the wealth of the Indians of the south. The implication is that the people of eastern Cuba knew of the Haitians and recognized that their culture was superior to that of the western end of their own island. They held out no inducement to Columbus to extend his explorations westward, as we might suspect they would have done had there been a superior race in that end of the island.

The great Genoese returned to Cuba on his second voyage and explored the entire southern shore. Bernaldez, to whom we owe an account of this visit, scarcely mentions the Indians in this part of the island, although he describes the Jamaicans in some detail, regarding them a highly developed race. Many native fishermen were seen along the shore, but they were evidently lower in development than the Jamaicans, whose canoes (according to Bernaldez) were painted, better made, and more luxuriantly ornamented than those of the Cubans.

Numerous references might be quoted from the writings of those who followed Columbus, showing that the prehistoric customs and languages of the natives of the eastern and western ends of the island were not the same. In the judgment of many of the Spanish conquerors, among whom Diego Velazquez may especially be mentioned, the natives of Cuba were more susceptible to Christianity than the other West Indians, but they say that this docility was not true of all the Cubans, some being less tractable than others. The extreme western end of Cuba was said to have been inhabited by barbarous Indians similar to those living in Guacayarima,[93] the Province at the western end of Haiti. The Spanish writers declare that these natives could not speak; by which is probably meant that their language was different from that of any other Indians of these islands. Bachiller y Morales says that the Guanahatebeyes (Guanacahibes), who lived in the interior of Cuba, were savages who did not treat with the other Indians. He adds that they lived in caves, which they left only to go fishing, and quotes from older writers[94] that there were other

[93] A town on the island of Trinidad, where survivors of the Indians still live, is called Arima. There is another Trinidad village called Naparima.

[94] Cuba Primitiva, p. 280.

Indians called Zibuneyes, a tribe that included the inhabitants of the islands off the northern and southern coasts, called the Gardens of the King and Queen, who were enslaved by the other natives.

According to La Torre[95] the Indians of Cuba form one of the natural groups of the Tainos and are generally known by the name Siboneyes. They inhabit, he says, the whole island and have the same customs, although in certain parts of Cuba there are backward tribes, as the Guanacahibes of Cape San Antonio. The original authority for these statements is found in the Muñoz collection, and reads as follows:[96]

"Lo mismo podrá hacerse con los indios de los Jardines del Rey é de la Reina, que son muchos islotes de indios que no suelen comer sino pescado solo. E éstos se les durá menos trabajo, pues no están acostumbrados sino á pescar, lo mismo se entiende para unos indios al Cabo de Cuba, los cuales son salvajes que en ninguna cosa tratan con los de la Isla, ni tienen casas, sino están en cuevas continuo, sino es cuando salen á pescar; Guanahatabeyes otros hay que se llaman Cibuneyes, que los indios de la misma Isla tienen por servientes é casi son ansi todos los de los jardines."

Diego Velazquez, the conqueror, wrote[97] to the King of Spain in 1514 that there were two provinces in the western part of Cuba, and that one of these was called Guaniquanico, the other Guanahatabibes. The latter was situated at the western extremity, where the natives lived as savages, having neither houses nor farms, subsisting on game captured in the mountains or on turtles and fishes. Peter Martyr d'Anghera says that the inhabitants of the Haitian Province of Guacayarima, to which these Indians are said to have been allied, lived in caves and subsisted on forest fruits.

Gomara[98] mentions the fact that the inhabitants of different parts of Cuba have different languages, and says that both men and women wear little clothing. He thus writes of a peculiar custom which they practiced in their nuptials:

"Si el Novio es Cacique todos los Caciques combidados duermen con la Novia, primero que no el; si mercador, los mercadores; i si labrador, el Senor o algun Sacerdote."

HISTORICAL

The earliest contribution to the archeology of Cuba we owe to Señor Andrés Poey, who in 1855 read before the American Ethnological Society a paper entitled "Cuban Antiquities: A Brief Description of some Relics Found in the Island of Cuba." Although

[95] Manual ó Guia para los exámenes de los Maestros y Maestras, p. 45.
[96] Vol. LXV. See also Ferrer, Naturaleza y Civilizacion de Cuba, vol. II, p. 142.
[97] Documentos inéditos del Archivo de Indias, vol. XI, pp. 224, 225.
[98] Historia, chap. 51, p. 41.

Brinton[99] says this paper was not published in English. Señor J. Q. Garcia, in 1855, edited what he calls a Spanish translation of it in the fourth volume of his Revista de la Habana.

The figures accompanying this article include two stone images, a few clay heads copied from Charlevoix,[1] and a stone pestle taken from Walton.[2] The stone images are from Cuba, but the pestle and the clay heads came from Santo Domingo. The images more especially concern us in this article. One of these, called an idol, is made of a hard stone of reddish color, highly polished, with a head cut on one end. Poey believes it was originally covered with a varnish which has been worn off in exposed places. He is probably right in this conclusion, for remains of a resinous substance which once covered some of the three-pointed stone idols from Porto Rico still adhere to several specimens. This so-called idol has the general form of a celt, although it differs in details from the ceremonial celts which have thus far been described as from the West Indies. It is now in the Archeological Museum at Madrid. There is no doubt that the other image, described and figured both by Poey and Ferrer,[3] is an idol. The former likens its attitude to that of a dog resting on his hind parts, the forelegs crossed over the abdominal region. This specimen is now in the University of Habana, to which institution it was presented by Ferrer.

The form of this idol is different from that of idols from Santo Domingo and Porto Rico, but its technique indicates an equally high development in stone working.

In a brief article of four pages, Brinton, "without aiming at completeness," gives a review of the labors and results of students of the archeology of Cuba. He calls attention to some of the contributions of Poey, Ferrer, Garcia, Pi y Margall, and others, and shows that the archeology of Cuba "has not been wholly neglected by intelligent Cubans, although it is true that there has been little serious investigation of the remains." He considers that "the most promising localities for research would seem to be the extreme eastern and western provinces, Santiago and Pinar del Rio. In the caves of the latter we should, if anywhere, find traces of the Mayan culture."[4]

[99] The Archæology of Cuba, American Archæologist, vol. 2, No. 10, Oct., 1898.

[1] L'Histoire de l'Isle Espagnole ou de S. Domingue, Paris, 1730.

[2] Present State of the Spanish Colonies, Including a Particular Account of Hispañola, London, 1810. Mr. Walton finds in these pestles evidences among the Haitians of phallic worship like that of the Hindoos, and Poey devotes considerable space in his articles to a discussion of this theory, which he supports. The comparisons of this pestle to the yoni and lingam appear to me to be strained, especially when we examine a series of these objects, some of which represent birds and other animals.

[3] Congreso Internacional de Americanistas, Actas de la Cuarta Reunión, Madrid, 1881, p. 245.

[4] Brinton says that according to Ferrer there are caves along the Rio Cuyaguatege, in Pinar del Rio, in which the aborigines interred their dead. Archæology of Cuba, Amer. Archæol., vol. II, no. 10, 1898, p. 256.

According to Brinton,[5] Señor Garcia gives in "one of the numbers of the Revista de la Habana an illustration of what is called a *duchi*, which is the common term in Cuba for the figures of stone or clay attributed to the aborigines. This particular *duchi* was a stone ring, with eyes and ears of gold, and was supposed to have been the seat or throne of a chief, but probably was a stone collar." The author has not been able to find this illustration in the Revista de la Habana, although he has examined and copied Garcia's two articles which he claims to be translations of Poey's paper read before the American Ethnological Society, which have not been seen.

Brinton's suggestion that this duchi was a stone collar does not appeal strongly to me, for the term duchi, duho, or dujo was given by the West Indians to native seats or stools in the form of animals with eyes and ears of gold.[6]

According to Bachiller y Morales,[7] D. Tomás Pio Betancourt, in his Historia de Puerto Principe, says that D. Pedro de Parrado y Pardo, in a book on the genealogy of families of Bayamo, written in 1775, gave the name duho to one of these seats, in possession of Doña Concepcion Guerra, that formerly belonged to the Cacique of Bayamo.

I am unaware that the following statement by Brinton[8] has ever been verified: "I have also learned," he writes, "of a locality, which I will not now further specify, in central Cuba, a river valley, along which, from time to time, one meets grim faces carved from the natural rock, and sometimes monolithic statues, the work of the aborigines and believed to represent the guardian spirits of the river. This locality I hope to have visited by a competent person this winter." A verification of these statements and a description of these supposed "monolithic statues," with figures of the same, would be an important contribution to Cuban archeology. It would also be interesting to know whether the river valley where they are reputed to have been found was in the eastern or the western provinces of the island.

At the Madrid session of the International Congress of Americanists, in 1881,[9] Señor Rodriguez-Férrer read a paper in support of the theory that there was evidence of the existence, in prehistoric times, of Cuban aborigines different from those discovered by Columbus. The thesis is defended mainly by facts drawn from crania found in caves, but the two archeological specimens which

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[5] Op. cit., p. 253.

[6] So far as known, stone collars and three-pointed idols, which characterize Porto Rican aboriginal culture, have not been found in Cuba.

[7] Cuba Primitiva, p. 268.

[8] Archæology of Cuba, p. 255.

[9] Congreso Internacional de Americanistas: Actas de la Cuarta Reunion, Madrid, 1881, vol. I, pp. 224–267.

he elsewhere describes and figures are also brought to the support of this theory. There is nothing to show that this cave people differed in any respect from those to whom early writers allude as living in the central and western parts of the island. All the evidence appears to support the theory that some of the natives of Cuba lived in caves at the time of the discovery, and the conclusion is natural that they were the lineal descendants of the oldest race which they resemble in bodily and cultural characters.

Señor Rodriguez-Férrer, in his valuable work,[10] referring to the letter of Las Casas and to other evidence published in the Documentos Inéditos del Archivo de Indias (vol. viii, p. 34), points out certain differences in the culture of the natives in different parts of the island, which are practically the same as those indicated by archeology.

An important addition to our knowledge of Cuban archeology was made by Don Eusebio Jimenez,[11] who, in October, 1850, excavated some mounds in the central part of the eastern end of the island. According to J. de J. Q. Garcia these important remains were found on the farm of D. Francisco Rodriguez, nearly 5 miles southwest of Moron. Various utensils and objects made of hardwood, stone, and burnt clay were recovered from these mounds. The description which Garcia gives of the excavations leaves no doubt that these mounds, called caneys, were aboriginal burial places, and they suggest the existence in the neighborhood of one of those dance places called cercados de los Indios, or juegos de bola, which occur in Santo Domingo and Porto Rico. One of the best known of these aboriginal inclosures in Cuba is the so-called Pueblo Viejo, situated in the eastern end of the island, near Cape Maysi. Although this inclosure has been described by several writers, no one has yet called attention to its resemblance to the dance inclosures of the neighboring islands.

It is evident from the contents of the numerous caves that have been excavated by Dr. Montané and others in Santiago and Puerto Principe Provinces that cave men lived in those provinces after the introduction of a higher culture from the neighboring islands.

Although there is considerable literature on the somatology of the Cuban Indians, especially on crania found in caves, a consideration of this subject is foreign to the scope of the present article, which is devoted mainly to the consideration of evidences of the existence of a high and a low culture in Cuba at the time of its discovery. The crania found embedded in calcareous rock in caves near Cape Maysi and elsewhere on the eastern end of the island

[10] Naturaleza y Civilizacion de la grandiosa Isla de Cuba, Parte Segunda—Civilizacion, Madrid, 1887, pp. 142–144.

[11] See El Periodico de Puerto Principe, and Faro Industrial diario de la Marina.

have been amply described by anatomists, and are highly instructive in a consideration of the antiquity of man in Cuba, but I am not yet ready to express myself fully on their significance. The natural inference would be that these skulls support the theory of ancient cave man in Cuba, of whom the Guanahatabeyes were the survivors in the fifteenth century; but West Indian caves were used as burial places after the discovery, and no one has yet satisfactorily shown any great difference in the crania embedded in rock from those found under usual conditions in the caves.[12]

Dr. Enrique Gomez Planos, in his valuable work on prehistoric Cuba,[13] mentions several caves on the island from which human remains and pottery have been taken, and gives an interesting résumé of Cuban archeology without adding much that is new to the subject.

Another work containing considerable material on Cuban ethnology is that of Bachiller y Morales,[14] a most valuable compilation, but very carelessly edited. It contains much information in regard to the aborigines of the Greater Antilles, but the title "Cuba Primitiva" is somewhat misleading, for while it contains chapters on the subject of primitive Cuba, the larger part of the book deals with Haiti and Porto Rico.

ARCHEOLOGICAL OBJECTS

The distribution of polished stone objects in Cuba may be said to confirm the historical accounts of a difference in culture between the inhabitants of the eastern and those of the western provinces. Those of Santiago resemble objects from Haiti and Porto Rico, but no similar implements are found in Pinar del Rio at the western end of the island.

There are two collections of Indian objects in Habana which contain objects of interest to the archeologist. One of these, the smaller, is in the museum of the Academia de Ciencias, on Calle de Cuba; the other is in the university near Vedado, a suburb of the city. Both collections are under the directorship of Dr. Luis Montané, who has conducted excavations in several caves of the island and has in preparation a memoir on the subject. The collection at the university is particularly rich in crania from caves, and

[12] For an account of these remains see Anales de la Academia de Ciencias, vol. xxvii, Habana, 1890.

[13] Prehistoria de la Isla de Cuba, Anales de la Academia de Ciencias, vol. xxxvii, Habana, August–December, 1900.

[14] Cuba Primitiva: Origen, Lenguas, Tradiciones e Historia de los Indios de las Antillas Mayores y las Lucayas, 2d edition, 1883. In his paper on the Archeology of Cuba (1898) Brinton thus refers to this valuable book, fifteen years after its publication: "The announcement of it, which is before me, dated 'Havana, 1881,' states that it will discuss the antiquities of the island, and the traditions and languages of its early inhabitants. Whether it was published or not I have not learned."

contains several interesting objects, descriptions and figures of which have not been published. Dr. Montané has kindly shown me many photographs and charts illustrating his explorations, and has courteously permitted me to photograph some of the more striking objects, including a stone collar from Porto Rico.[15] The majority of the archeological specimens came from the eastern end of the island and closely resemble in technique those from Porto Rico. Among the objects seen in these two collections are 10 petaloid celts in the academy museum and about double that number at the university. One of those in the latter collection has a stone handle like those obtained by me in 1903 in Santo Domingo. There is also a celt with a face cut on one side—evidently a ceremonial celt like one in Archbishop Meriño's collection. This likewise is a product of Tainan culture, as is the stone pestle with a well-fashioned head on the end of the handle.

The three choicest specimens in Dr. Montané's collection are a wooden idol, a stone turtle, and a shell with a face cut on one side. The wooden idol has a perforation, as if for attachment to a staff, and may have been used in ceremonial dances like those of the Salivas and other Orinoco tribes described by Gumilla.[16] The turtle of stone recalls one of wood collected by Ober in a cave in St. Vincent in 1878 and now in the Smithsonian collection, but, unlike it, the latter is not perforated for attachment. An account of these objects in the university museum, with localities and figures, would increase our knowledge of the archeology of Cuba.

In the Santiago museum were two idols made of coral rock, one (fig. 64) of which, according to the label, is from Cueva de Boruga, near Baracoa, the other (fig. 65),[17] which is smaller, from the Loma del Cayuco, Gibara. The former was loaned to Prof. W J McGee, Ethnologist in Charge of the Bureau of American Ethnology, by Señor Quesada in 1900, at which time Mr. DeLancey Gill made front and profile photographs of the specimen. This idol represents a seated figure, with elbows on the knees and hands to the breast. Its whole appearance is different from that of any West Indian idol that I have ever seen.[18]

The smaller idol, also of coral rock, shows the septa of individual coral animals scattered over the surface, and has the form

[15] The idol presented by Señor Ferrer (fig. 66) is historically the most interesting in this collection.

[16] El Orinoco, ilustrado y defendido, Madrid, 1745.

[17] Prehistoric Culture of Cuba, Amer. Anthrop., n. s. vol. 6, No. 5, 1904.

[18] The exceptional form of this idol, when compared with those from Santo Domingo and Porto Rico, may lead some archeologists to doubt its authenticity. The form of the mouth, however, is almost identical with that of the head of a pestle from Santo Domingo, and the attitude recalls that of the wooden idol in the university museum at Habana.

of a pestle, the arms being obscurely indicated and the legs being replaced by a base upon which it stands.



Fig. 64.—Idol of coral rock from Cueva de Boruga, Baracoa, Cuba (Santiago Museum).

The idol shown in figure 66 is the same as that elsewhere mentioned as presented to the university museum by Señor Ferrer and figured by him and by Señor Andrés Poey.

The ceremonial celt, also in the Santiago museum, has a rude head cut on one end and arms carved in low relief on the sides. This

specimen is said to have been found at the Indian town of El Caney: it belongs to the same type as the ceremonial celt described and figured by Poey, Ferrer, and others. Its general character allies it to stone products of the Tainan culture of Santo Domingo and Porto Rico.

The celts collected by me in Cuba have the same forms as those from the other West Indian Islands, and are known to the country people by the same name, *piedras del rayo*, or thunderbolts (fig. 67). They are petaloid in form, smoothly polished, and without grooves for hafting. As in Porto Rico, there is considerable folklore in Cuba connected with these implements. Twenty petaloid celts were collected in the neighborhood of Santiago at El Cristo, El Caney, and the outskirts of the city.



FIG. 65.—Idol or pestle from Loma del Cayuco (Santiago Museum).

While in Santiago I purchased a small collection of Indian objects from Nipe Bay, on the northern coast of Cuba, which includes petaloid celts, fragments of pottery (fig. 68), a shell implement, and other aboriginal objects. Among the last is a water-worn stone on which is cut in outline (more like a pictograph than in relief) a human face with mouth, eyes, and what might have been intended for a nose (fig. 69). The specimen is unique in form, and although not flattened on one side, in certain particulars it reminds one of the so-called stone masks of the ancient Porto Ricans. The chief characteristics of this outlined face are the oblique eyes and the three curved lines extending from their lower ends to the incised line which borders the face. Its use and significance are unknown to me, nor am I familiar with any similar specimen from the other West Indian Islands. It will be observed that this and the following specimens came from the eastern end of Cuba and can be referred to the Tainan culture.

In character the pottery from Cuba is practically the same as that from Porto Rico. The collection made by me consists wholly of fragments of clay heads from bowls or vases. The specimens shown in figure 68 were obtained from Nipe Bay on the northern coast, but I have seen almost identical fragments from Pueblo Viejo,[19] the dance inclosure near Cape Maysi.

The archeological evidences of a low culture stage in the western provinces of Cuba are thus far negative, for no objects which can be ascribed without question to the aborigines have yet been found in those parts. The known polished stone implements, idols, and like objects from Cuba resemble those characteristic of the Tainan culture, and are confined to the eastern end of Cuba.

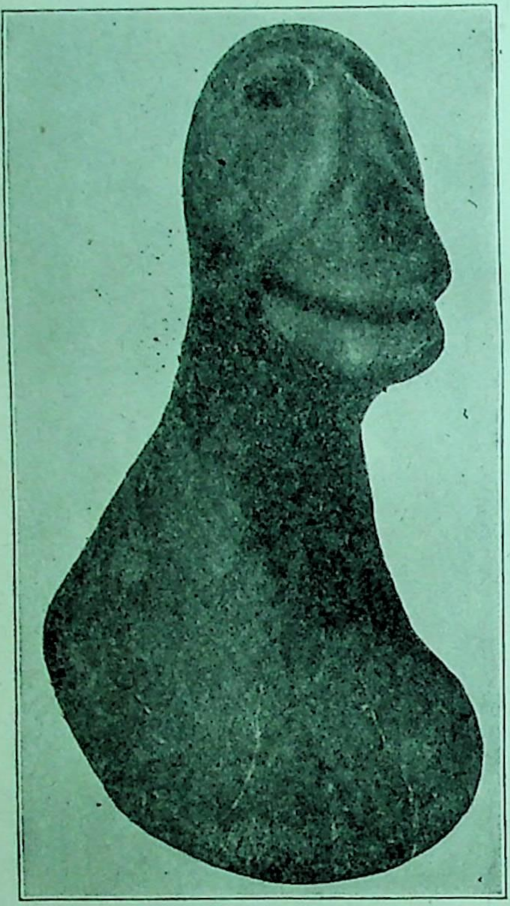


FIG. 66.—Stone idol (University Museum, Havana).

Naturalists have long recognized a marked difference in the fauna and flora of the two ends of Cuba. The prehistoric culture of these two localities was also different.

CONCLUSIONS

It appears from both historical and archeological evidences, so far as now known, that the Tainan or Antillean culture which was found in eastern Cuba did not originate on that island, but was introduced from Porto Rico or Haiti, where it reached its highest development. The germ of this culture came to both these islands from South America, but had grown into a highly specialized form in its insular home. There were minor differences in the different islands—Cuba, Jamaica, Santo Domingo, and Porto Rico—but these differences were all modifications of the polished-stone age.

There was considerable likeness in culture between the inhabitants of the keys of Florida and those of the Cuban coast and the

[19] This inclosure has been described by Ferrer and others; but one of the best accounts, and the only one in English that is known to me, is by Mr. Stewart Culin: The Indians of Cuba, Bulletin of the Free Museum of Science and Art, University of Pennsylvania, vol. III, no. 4, 1902.

small adjacent islands, due either to early contact of these two peoples or to migration from one to the other locality in limited numbers. The Indian villages of Carahate (near the site of the modern Cuban town of Sagua la Grande) and Sabaneque (near Remedios) were pile dwellings,[20] not unlike those of the Indians now inhabiting the delta of the Orinoco and the shores of Lake Maracaibo in South America; but these adaptive conditions do not necessarily show kinship, and more probably were of independent origin. The resemblances between Floridian and Cuban coast peoples were due to contact and interchange of culture.

There were at least two distinct stages of culture in aboriginal Cuba. The natives in the first stage were savages with few arts, but those of the second stage were as highly developed as any of the West Indian aborigines. The one was an archaic survival, the other an introduced culture which originated outside the island.

The people of the first stage were survivors of the earliest inhabitants of the island, but they have left little to the archeologist to indicate the status of their culture; nevertheless, it was evidently of a very low order. The natives of the Cuban coast and of the numerous small islands were fishermen. Their

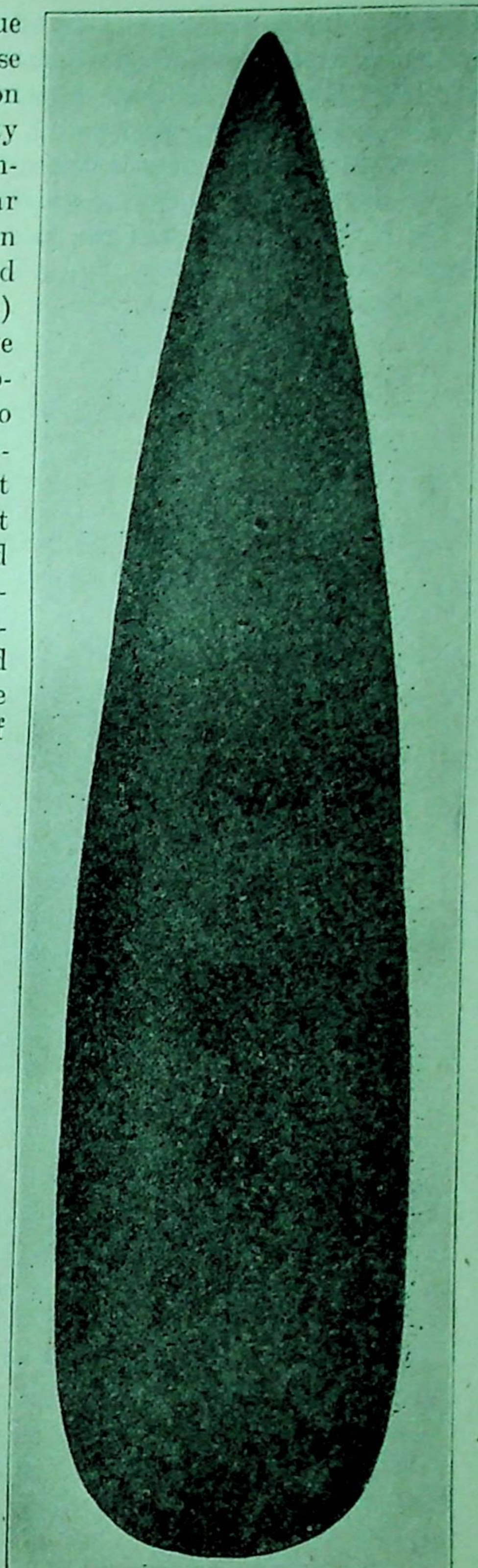


FIG. 67.—Petaloid celt (Santiago Museum).

[20] These houses built on piles were called barbacoas. The polygonal or circular house with conical roof was known as a caney, and the quadrangular dwelling, with two-sided roof, a bohio or bujio.

culture was higher than that of the others referred to, but the highest prehistoric culture was confined mainly to the eastern provinces, especially Santiago, and was apparently introduced from Haiti, where it reached a high development, although even in the mountains of that island there were survivors of the savage, or lower, culture stage which predominated in western Cuba.

The Carib, who occupied the Lesser Antilles from Trinidad to Porto Rico, were the last of the several South American tribes

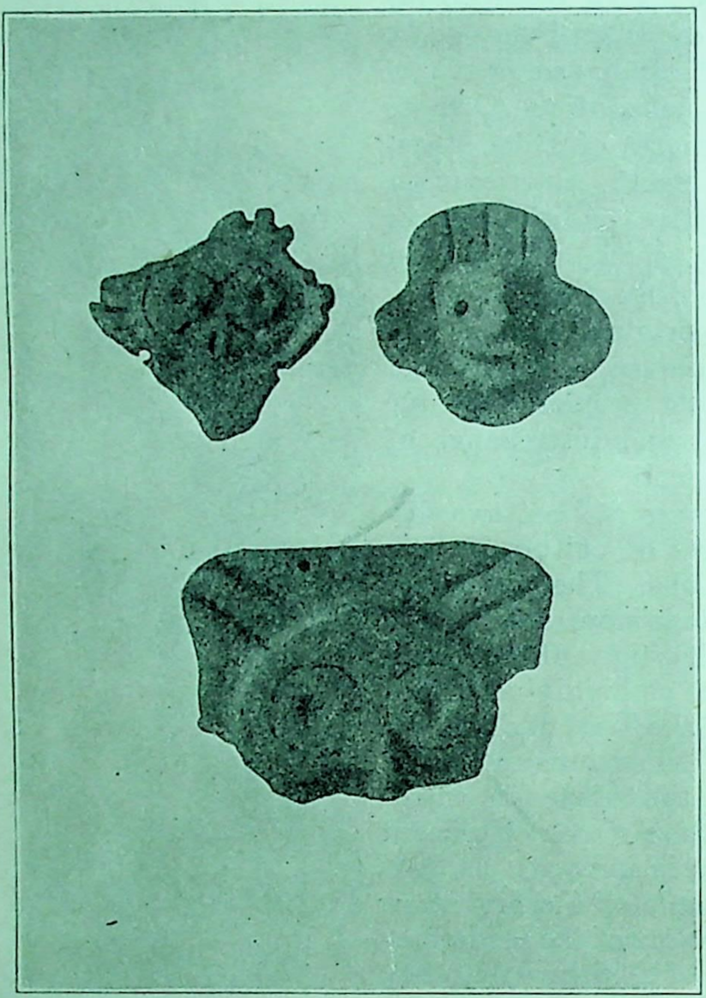


Fig. 68.—Fragments of pottery from Nipe Bay (U. S. National Museum).

which invaded the West Indies. This virile race at the time of the discovery had conquered and assimilated the original inhabitants of the Lesser Antilles and peopled them with a composite people. The evidence that the Carib settled on the coast of Cuba is not decisive. They probably visited the island in their marauding expeditions, but they contributed little to the existing culture of Cuba or that of the neighboring peninsula of Florida.

The Indians of Cuba, like those of Haiti, Porto Rico, and the Bahamas, were harassed by the Carib from the Lesser Antilles, but it is yet an open question whether these marauders had settled in any considerable numbers on the island at the time of the discovery. The inhabitants of the extreme eastern end of Cuba, like the Ciguayos, who occupied the region from Puerto Plata to Higuey, from exposure to the inroads of the Carib had become more warlike than the other people of Cuba, but this does not necessarily mean that they were Carib, as some writers appear to believe. The discovery of flattened skulls in caves near Cape Maysi, and their identity in this respect with deformed Carib crania from Guadeloupe, does not prove identity of race. According to Dr. Carlos de la Torre,[21] the explorations of Señor Miguel Rodriguez-Férrer, Valdés Dominguez, Montané, and himself tend to confirm the opinion of Rafinesque that the Caribs had settled south of Baracoa, but the evidence presented in support of this theory is not conclusive.



FIG. 69.—Stone with face from Nipe Bay (U. S. National Museum).

The original colonization and prehistoric culture of Cuba must comprehend three different conditions of aboriginal life, practically three different peoples—viz, the primitive cave dwellers of the central region and western extremity of the island; the fishermen living in pile dwellings in some places; and the Tainans having the true Antillean stone-age culture. The derivation of the last-mentioned culture from Haiti and Porto Rico is reasonably certain. The connection of the coast fishermen of Cuba with the shell heap and the key population of Florida was intimate, but it is still undetermined which was derived from the other.

The origin of the cave dwellers and of the rude savage race of Cuba is the most difficult of all to determine. Their ancestors were

[21] Manual ó Guia para los Exámenes de los Maestros y Maestras, Habana, 1901, p. 45.

the first colonists of the island, but we know little of their language, arts, names, and customs, and lack a basis for comparing them with peoples of North America or South America. It is probable that these people were lineal descendants of those whose semifossil skeletons found in caves have excited so much interest. No evidence has yet been presented to prove that this race had vanished when Cuba was discovered by Columbus.

The prehistoric objects from Cuba in the Heye collection have been greatly augmented in numbers since the author began his studies of the collection, and as these additions should be considered as a unit by their indefatigable collector, Mr. M. R. Harrington, it would not be justice to him to anticipate any of his discoveries by further comment in this report. The author has, however, introduced the preceding quotation from his account of the prehistory of Cuba, as it is a part of the work that has been done in preparation for this general discussion.

In a new field of research like the Antillean, when energetic collectors are annually adding so much new material, a delay in preparation of this report has rendered some of its results antiquated before they were published. This is as it should be, and it is a great satisfaction to feel that a subject like Cuba, of which so little was known when the author began his studies of the West Indies, has attracted so many other younger and better equipped archeologists. In antiquities from Cuba the Heye collection is one of the richest in the world, but there are many objects from that island in the Berlin Museum, collected by Bastian, and a very fine collection in the University Museum of Habana.

ISLE OF PINES

The largest outlying island of Cuba is the Isle of Pines, which shows evidence of being inhabited in prehistoric times by Indians, who have, unfortunately for science, left little to indicate their culture. We may suppose from this paucity of material that they were low in development and allied to the natives of the western end of Cuba, as no objects of Tainan culture have yet been found on the island.

The author spent several weeks at the capital, Nueva Gerona, from which, as a base, he visited all parts of the island. He discovered a few Indian skeletons in one of the numerous caves (cuevas de los Indios) near that city and investigated the sunken pits called Indian cacimbas, but found no artifacts that seemed to him adequate to determine the relationship of the prehistoric inhabitants. There is no collection of Indian antiquities from this island in the University of Habana; and, although since the author's explora-

tion a great many objects from Cuba have been added to the Heye Museum, little material has been obtained from the Isle of Pines.

Among enigmatical structures of supposed Indian origin are the so-called cacimbas—an Indian word which occurs in place names in Venezuela and even on the west coast of Florida with the spelling "caximba." The Indian word means a pipe, but the structures to which it is applied are subterranean depressions with openings at the level of the ground shaped like buried ollas. They likewise have in a few instances lateral entrances, and are generally accompanied by small areas showing evidences of fire and much charcoal. They occur among the pine trees; and as tar and evidences of turpentine occur on their inner surfaces, they may be places where tar or other products of the pine were obtained for ships or canoes. They are widely distributed in the Isle of Pines, a few being situated only a short distance from Nueva Gerona, the capital of the island.

It seems probable that these cacimbas ascribed to the Indians of the Isle of Pines may have been constructed by the aborigines under direction of their Spanish masters. Nothing of distinctly Indian culture was found in these subterranean depressions or near them, a fact that may have a bearing on the relative time when they were constructed.

In the neighborhood of Nueva Gerona there are numerous caves called "cuevas de los Indios," in the floor of which skeletons and fragments of the same, including a mutilated cranium, were found, but no accompanying artificial objects. These bones are of Indian origin, but whether they date back to prehistoric times or not it is, of course, impossible to say. It was a custom, not only in Cuba but also in all the West Indies, to bury the dead in caves, but antecedent to that custom we have good authority for the belief that caves were inhabited. Whether, therefore, the bones exhumed from the Cueva de los Indios, near Nueva Gerona, indicated this original cave population of the western extremity of Cuba, or burials in the historic epoch, no one can now tell. No pottery or mortuary objects of any kind which might have shed light on this question were found with the human remains.

JAMAICA

The antiquities of Jamaica are well known from the researches of Duerden,[22] and many specimens from this island in the Heye collection, collected by Theodoor de Booy, have been described by him in a paper in the American Anthropologist,[23] leaving it unnecessary for me to consider that island in detail.

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[22] Aboriginal Indian Remains in Jamaica, Journ. Jamaica Inst., vol. II, pt. 4.
[23] Certain Kitchen-middens in Jamaica, Amer. Anthrop., n. s., vol. xv, pp. 425–434.

GREAT CAYMAN

The author made a special visit to the Great Cayman in order to investigate its archeological features, but found nothing of importance to satisfy him that it was peopled in prehistoric times. He collected four stone axes, which may have been brought by turtle fishers from Honduras or Jamaica, and discovered a cave from which fragments of pottery were said to have been collected years ago. He is convinced that if there were any aborigines on the island in prehistoric times they belonged to roaming, nomadic Carib, who landed there and remained only a few days. No middens or shell heaps were called to his attention. Fragments of pottery occur in certain caves and a few celts were obtained from the natives. As some of these closely resemble those of the other islands they may have been brought there by visitors.

ANALYSIS OF WEST INDIAN ARCHEOLOGICAL DATA IN ITS GEOGRAPHICAL DISTRIBUTION

In the preceding account of archeological material from different islands the plan has been to group them as far as possible on a geographical basis. It is evident that there are great differences in the remains from different islands, and it is sought to account for these differences by minor variations in culture. A distinction in variety of cultures, probably in the beginning more marked, was more or less broken down by interchange of material cult objects before the advent of the Europeans, and while the problem is a very complex one a brief summary of differences in prehistoric pottery, implements, and ornaments may be instructive.

POTTERY

Although there is a general similarity in pottery from the West Indies, there are marked differences in the ceramics from different islands. In a general way it may be said that it indicates two great culture areas—that of the Greater Antilles (Haiti, Porto Rico, Cuba, and Jamaica) and that of the Lesser Antilles, the islands extending from the eastern end of Porto Rico to Trinidad. There are differences of note between pottery objects from Cuba, Jamaica, Haiti, and Porto Rico which would differentiate these as subculture areas of the Greater Antilles. The pottery from Haiti and Porto Rico is so close in likeness that these two islands are embraced in the same ceramic area, and this corresponds with what is known of the distribution of stone collars and three-pointed stones, which are characteristic of these two islands and not found in Cuba or Jamaica. It may be possible later to chronologically separate pottery from caves near the sea from that of caves in the upland of these islands, but at present this separation is conjectural. There are some differences between the pottery of Haiti and Porto Rico and the other Greater Antilles, but these are not very great. Jamaican pottery is the most aberrant of the Greater Antilles.

In the Lesser Antilles we also have a difference in ceramics from different islands. As a rule, the pottery from these islands is of better character than that of the Greater Antilles, perhaps the highest

grade being from Trinidad, which indicates a special subculture area so far as pottery is concerned. St. Kitts pottery ranks higher technically and artistically.

One important difference between the pottery of the Lesser and the Greater Antilles is the presence of a superficial slip in the former. This is generally red in color, the paste is finer, and there is a superiority from an artistic point of view in the ornamentation. The incised decorations of pottery from the Lesser Antilles are rectilinear or curved, but the lines have not the terminal pits which occur pretty generally in pottery from the Greater Antilles, Porto Rico, Haiti, Cuba, and the Bahamas. The ornamentation of pottery from the Lesser Antilles is not as commonly produced by applied relief figures, and the relative number of effigy vases is less than in the Greater Antilles. The ring-shaped base is common in the Lesser but rare in the Greater Antilles. As a rule, animal heads are more common in the former than the human heads so constant in Santo Domingo pottery.

The pottery from Barbados is as a rule coarse, the relief decorations low and crude. It can hardly be placed in the same category as the beautiful ware from Trinidad. Grenada ceramics resemble the Trinidad forms.

The pottery from St. Vincent is quite distinct from that of St. Kitts, which includes also Nevis. It resembles that from neighboring islands, as Carriacou, and marks a distinct ceramic area.

The island of St. Kitts had a development in ceramics quite distinct from any other and shares with Trinidad the position of the highest development of the pottery technique in prehistoric West Indies. It is as a rule simpler in form and does not have the complexity of development of handles, lugs, and superficial additions so prominent in the pottery of the Greater Antilles. The forms are more graceful, and incised decorations are less frequent. Perhaps it is more closely related to pottery from Trinidad than to that from any other island, but it is distinctly unique. This is likewise in conformance with the character of stone implements, as notched axes, pestles, and ornaments. On St. Kitts pieces of pottery with incised decorations filled in with white pigments are found, imparting an appearance of painted ware—a condition not yet recorded from the other islands. As a rule the heads found in pottery from St. Kitts are not as grotesque but more realistic than those from the larger islands.

Mr. Joyce[24] has pointed out the resemblance of some of the heads of Trinidad prehistoric pottery from Erin to that which occurs "throughout the basins of the Aruka and Araau tributaries of the Barima River, not far from Morowhanna. The Aruka hills, iso-

[24] Central American and West Indian Archaeology, p. 254.

lated eminences, stand now in a tidal mangrove swamp, and were evidently at no very distant date actual islands." This significant relationship points to a cultural connection of the prehistoric inhabitants of the strictly continental islands like Trinidad to those of the neighboring coast of South America, as shown also by De Booy's archeological investigations on the island of Margarita.

A word may be said in regard to the affinities of the pottery of all the Lesser Antilles and that of the Greater from the chronological point of view. The pottery from the former is often styled "Carib pottery"; that from the latter, "Tainan" or "Arawak." There may be little foundation for these designations. When Columbus discovered America he recognized the difference between the inhabitants of the Greater and the Lesser Antilles, and all the early writers have regarded the two as distinct people and commented on their customs. That the inhabitants of the Lesser Antilles were different from those of the Greater at the dawn of history should not lead to the statement that objects found on the two groups indicate the same difference in culture. Many of the so-called prehistoric objects from the Lesser Antilles antedate the submergence of the people who made them by the Carib, and it is probable that the conquered people might have been more closely related to those of Porto Rico; in fact, might be called Tainan or peaceful agriculturists. That the conquering race obtained by acculturation many features of culture of the conquered is true; in fact, we know it appropriated the wives of the Tainans, who transmitted a higher culture to the Carib of the islands. The pure Tainan culture of the Lesser Antilles was no doubt modified by mixture, but there is every reason to believe that the antecedent form of life in the Lesser Antilles in ante-Carib days had many points of resemblance to that dominant in Porto Rico in the days of the advent of Europeans.

Thus far little has been done in the determination of the relative age of the different kinds of pottery found in the West Indies and the comparative age of pottery from shell heaps, caves, and "juegos de bola." Some of the shell heaps offer good opportunities for stratigraphical studies, and caves should be excavated, paying attention to the relative depths at which different kinds of pottery occur. The provenience of many specimens of West Indian clay heads in our museums is doubtful, and a more accurate knowledge of the localities from which they were taken is a necessary prerequisite for exact generalizations on its distribution. The pottery from Cueva de los Golondrinos, on the north shore of Porto Rico, described and figured in plate lxxiii of Aborigines of Porto Rico, is quite crude as compared with the best Porto Rican ceramics and would seem to have been the product of a people of different culture.

The handles of bowls are destitute of heads or realistic decorations of animal form, and are vertical bands, pits with a raised ridge, or simple lugs. Whether the caves in the interior of the island have similar pottery is not known, but there is every probability that the numerous excavations made in them since my visit will shed much light on this subject. It is very desirable that those having more material on cave and shell-heap ceramics should make thorough examinations of the character of pottery from different parts of Porto Rico.

STONE IMPLEMENTS

The stone artifacts from the West Indies indicate a division into two large groups, corresponding roughly with the geographical divisions called the Greater and Lesser Antilles. The predominating type of stone implement of the Haiti-Porto Rico group is the celt of almond shape called the petaloid, which is also common in collections from Cuba and Jamaica. The name conveys accurately the form of these implements. They rarely show any sign of a groove for hafting, have a pointed poll and a curved, often blunt, edge. The predominating cross-section of these petaloids is oval, but convex-concave outlines also exist, and some are slightly angular or rounded at the corners. Their surfaces are smooth, often highly polished, and are among the most beautiful known forms of stone implements. Outside the Greater Antilles area they are rarely found.

There are several known examples of these petaloids with faces, heads, and human figures cut on the surface.[25] The mode of hafting of the petaloid is known from several specimens. One specimen has been found with a wooden handle and in others the wooden handle is replaced by stone, which is sometimes engraved on surface and extremities.

The stone implements from the Lesser Antilles are quite different from those of the Greater Antilles, although the petaloid occurs in scanty numbers. The typical ax with blunt poll has been found on several islands, and many of these have a shallow groove for hafting. A cross section of these is generally oval or square with rounded angles. The ax with two deep opposite angular marginal notches, a strictly South American form, occurs in St. Kitts and Trinidad, but is not found in great numbers. It has not yet been recorded from Haiti and Porto Rico. The poll of this type is flat, the cross section oval, and the thickness much less than the breadth.

By far the most numerous form of ax from the Lesser Antilles is that found often in caches and abundantly figured in this article. The forms vary from a circular, oval, or almost square body with regular or asymmetrical outlines. The greatest modification appears

[25] Fewkes, Engraved Celts from the Antilles, 1915.

in the poll, which is bifid, or crossed by vertical ridges modified into what looks like birds' heads, and various other grotesque figures. These have no well-marked groove for hafting and many are too large for practical use. The surface is rough; none have the polish of the petaloid, but many have incised figures cut on their surface and some are perforated, the perforation being confluent with the edge, making that region bifid. A very large number as well as a great variety of these axes have been found in St. Vincent, and the form occurs in other islands, but this ax is characteristic of the Lesser Antilles.

The theory that this form sometimes represents unfinished weapons on account of their occurring in caches is interesting, but has not yet been fully demonstrated. Their edges are not sharp enough to cut wood or other objects, and there is no evidence that they were hafted.

The forms of grinders or pestles distinguish at least two sub-culture areas of the Antilles. Thus the pestles from the Haiti-Santo Domingo area have elaborated heads, which are absent in those from Porto Rico. The pestles of St. Kitts are as a rule conical without decorations. The grooved pestles found in Guadeloupe are described by Prof. Mason as blades.[26] There are about 65 pestles in the Guesde collection in the Berlin Museum. There is not a single pestle with decorated head from that island, but a very large number of grinding stones (or hammers).

The most important difference between stone objects from the Porto Rico-Santo Domingo area and the Lesser Antilles is the presence in the former of stone collars, elbow stones, and three-pointed stone idols, and their total absence in Cuba, Jamaica, and the Lesser Antilles. We find, however, certain crude forms of three-pointed idols in the latter islands, but the well-made, highly decorated specimens are peculiar to Porto Rico and Haiti. These two types seem to have been autochthonous in the Haiti-Porto Rico area, and are alone sufficient to differentiate this area from all other West Indian prehistoric cultures.

The very natural desire to know the uses of these peculiar and exceptional objects can not yet be gratified. There are many theories of their use, and it is pretty generally conceded that they are zemis or idols rather than badges of office or secular paraphernalia. Their elaborate symbolism and variety of forms make their interpretation difficult. Their relative abundance connects them intimately with some great desire of their owners and points to some widespread want in the Antillean mind.

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[26] Among the grinders (pestles) in the Guesde collection figured by Prof. Mason as "blades" may be mentioned figs. 119, 120, 121, and 122. Nos. 135, 136, 137, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149–157, 158, 159, and 160 are variously identified as hammers and stones for various uses. The majority are, however, rubbing stones or grinders.

There was no material necessity greater in the life of an agricultural people than the fructification and growth of their food supply. The West Indian culture was based on the growth of the yuca plant, from which cassava meal was obtained. It would be in accordance with what is known of other primitive religions of agricultural people for the Antilleans to center their religious ideas about their food plant, and naturally the production of yuca was the great need of the Antilleans. One of the two great gods of the Haitians, according to Pane, bears in its name the element yuca. Yucayu was the great Sky god, whose name is varied, but under various designations controls the rain, the winds, and other phenomena of the sky. This is supposed to be the beneficent Sky god, and there was a stone image in the Sacred Cave of the Haitians called Maroio (Morahu), which from its holy character must have been one of the chief shrines. It is, perhaps, a coincidence that the Yucayu or Yuca god of the sky has for part of its name Guamaonoco, or Maorocon, in which we detect the element maroio of various spellings, as if the name of the idol and the name of the beneficent Yuca god were the same. They were at least similar conceptions, as both were appealed to for rain. There was another stone idol of equal sanctity to Moroio in the Cave of the Sun, the sanctuary of the Haitians. This idol was called by Pane, Bonael, and was also appealed to for rain—a function of the highest deity in the Antillean pantheon. Bonael was supposed to be the idol of a being in the Sun, as Maroio was that of the Moon god. The sun and moon are also symbols of a higher god of the sky, the Yucayu or the god of winds and rain which the Antillean farmers worshiped.

Bonael (*el* signifying son; the son of Bona) was not the chief god, but was the son of another who might have been. Who, then, was Bona, his father? Ma boya, the great (*ma*) Boya, was the great god to which the Antilleans appealed for rain. He must have been a Sky god, and a great one at that. Boa is the serpent and Maboya is the great serpent. Guabansex was a woman to whom the Antilleans prayed for rain. Her two assistants were her agents in bringing rain, etc. Maboya and Guabansex have many points of similarity. In this apparently tortuous linguistic method the conclusion is arrived at that the great Sky god to whom the Antilleans prayed for success of their farming was a serpent god; not a god of evil, as early authors stated in their interpretation of Antillean mythology, but a beneficent god, although at times a ruler of the hurricane. The great serpent might readily have been the god of the yuca.

Did the Antillean represent this serpent in stone, as we are told he did in wood? Mr. Joyce has shown the relation of the collar stones to a bent tree, and the author has interpreted the designs on them as

representing the idol of the yuca plant. Porto Rican stone collars have certain resemblances to serpents with tail bound to the neck. The collar stone thus becomes the idol of the great beneficent serpent, Hura kau, to whom the Antilleans prayed for rain for their yuca.

The other important power worshiped by the Antilleans was *Mamona*, or *Tierra* the earth, Mother Earth, the female element that produces the yuca. A problematical stone idol of the Antillean that is not less numerous than the stone collar is the three-pointed stone. According to Pane three-pointed stones were worshiped "to make the yuca grow." These are supposed to represent clan tutelaries, children of the earth power.

ORNAMENTS

Although a considerable number of amulets, beads, and objects of personal adornment are known from the West Indies, our knowledge of these is mainly confined to the Haiti-Porto Rican area. We can hardly expect any great difference in those from different islands, since they are portable and no doubt were exchanged in trade even in prehistoric times. Gold objects traveled in the hands of traders from one end of the West Indies to another, and, although there is good evidence that many ornaments of this metal existed on the islands when discovered, no single specimen is now to be found in any of our museums. From contemporaneous descriptions of these objects that have come down to us there is little doubt that the Antillean goldsmiths were not less clever workmen in this line than their neighbors on the Continent. The avidity with which they exchanged their work for objects made of baser metal and the richness of the sources of gold in the Cibao Mountains would seem to indicate a considerable abundance of gold objects among the prehistoric Haitians, Porto Ricans, and Cubans, and possibly renewed search may yet bring some of these objects to light.

There is little doubt that the aborigines of the Greater Antilles had more gold objects than those of the Lesser Antilles.

CONCLUSIONS

The foregoing data may be discussed from two points of view—first, the geographical distribution of the archeological material, and, second, its distribution in time.[27]

A study of the geographical distribution of archeological objects in the West Indies leads me to divide the area into three great divisions—the Greater Antilles, the Lesser Antilles, and the Bahamas. The characteristic orographical feature of the Greater Antilles, as compared with the other regions, is their size, their geological character, and the extension of their axis east and west. The four great islands, universally called the Greater Antilles, including Porto Rico, Haiti, Jamaica, and Cuba, are tops of high mountain chains, reaching a moderate altitude, composed of sedimentary, azoic and volcanic rocks, in which the first predominate. An extension of this mountainous chain westward would unite it with the Mexican-Central American highlands, Jamaica being continued westward by a submarine bank which rises out of the sea in the Caymans. Many geologists are in accord in the belief that formerly the Caribbean Sea was closed on the north by a continuous elevated region extending practically from the Yunque Mountain in eastern Porto Rico to the coast of Yucatan, and others find evidences of this former communication well marked in distribution of animals and plants. It is an interesting fact to note that cultural likenesses between the Greater Antilles and Central America are limited to the islands of Porto Rico, Haiti, and Jamaica, and the eastern end of Cuba. The western end of Cuba, where it approaches nearest to Yucatan, has not a close likeness, culturally speaking, to the mainland. As can be shown from the nature of the artifacts characteristic of the culture of man in this region of the Antilles, the indication of a derivation from Central America is not close. Evidently it occurred in very ancient times, before a characteristic Antillean culture had developed on the islands. The characteristic cult objects from the Antilles do not occur on the mainland but there is a likeness in fauna and flora.

The geology of the Lesser Antilles is more closely allied to that of South America, all the West Indies, from the Virgin Islands to Trinidad and Barbados, having their longer axis north and south, forming a chain of islands, either submerged peaks or volcanoes, some of which are still active, or a submerged ridge of land extending from South America, having all the geological characteristics of the adjoining region on the continent. The fauna and flora of the Lesser Antilles are distinctly South American, and the cultural relationship of the prehistoric inhabitants of these islands shows a

[27] The relations of aboriginal culture and environment in the Lesser Antilles have been discussed in my article in Bull. Amer. Geog. Soc., vol. xlvi, no. 9, 1914; reprinted as Cont. Heye Mus., vol. i, no. 8.

like kinship. It is not known whether the separation of these islands was before or after man's advent.

The Bahamas, forming the third geological area, are low coral islands, closely connected geologically with the adjacent peninsula of Florida, but not mountainous like the other two divisions. Culturally and biologically the Bahamas have relations on the one side to the adjacent regions of North America and on the other to the neighboring islands, Cuba and Porto Rico. The cultural features follow in distribution the fauna and flora, as might be expected.

From the chronological point of view the evidence of the archeological objects above recorded indicates a longer occupation of all areas considered and a distinct cultural development in those areas. In other words, it appears that while there has been a process of acculturation going on throughout the West Indies there has been a specialized development of culture in the different groups of islands. If we compare the antiquities of the Greater Antilles with those of the Lesser we readily note these important differences, which have been emphasized in previous contributions to the study of the aborigines of these islands. Two distinct cultures, one of which may be called the Tainan, the other pre-Carib, are evident. The Tainan was that of an agricultural people, and we may conjecture that the ancestors of the Tainans settled the islands in very ancient times before specialized features which distinguish that culture had been developed. This pre-Carib colonization formerly extended over the whole Lesser Antilles and took place before written history began. It was replaced by waves of Carib immigration from South America, being submerged in all the Lesser Antilles as far north as the Virgin Islands. These waves of Carib invasion, overrunning these islands, radically changed the character of Antillean culture. The Carib killed the men and appropriated the women, the result being a mixed race, in which the arts of the preexisting Tainan people were appropriated. Evidence of this mixture may be found in the difference between the language of the men and the women, to which attention was called by Columbus and the early travelers; the women, who were the slave wives of the Carib, retaining the language of the conquered, the men speaking a tongue akin to the Carib on the Orinoco. Most of the objects called Carib, especially ceramics and basketry, which represent the prehistoric Lesser Antilles, belonged to a submerged culture. Although represented in such abundance in archeological collections from the Lesser Antilles, they do not occur in the same abundance or have the same characteristics among the Carib on the continent of South America. They are characteristic of an epoch [27a] previous to the submergence of the island people by the Carib.

[27a] So long as all the artifacts found on an island are arbitrarily assigned to the same culture epoch archeology will be unscientific.

In the Bahamas the relationship of prehistoric aborigines with those of North America is shown most strikingly in the character of their pottery. The Bahamas also suffered from the incursions of the Carib, and their aboriginal culture shows strikingly the marks of this influence.

From the data now in hand we can distinguish three cultural epochs in the West Indies. The earliest people were cave dwellers,[28] a mode of life that had not wholly disappeared at the advent of Columbus, who recorded the existence of cave dwellers in Cuba and the western extension of Haiti. This cave dwelling culture, or the earliest known in the West Indies, was not generally dissimilar to what has been recorded in coastal South and Central America. It apparently extended throughout both the Greater and Lesser Antilles, but on account of the absence of caves it naturally did not exist in the Bahamas. It appears to have been allied to that of the coast of Florida. As the great shell heaps occurring on the islands would indicate, and the pottery from these shell heaps emphasizes, the life of the caves is almost identical with that of the kitchen midden. The absence of fine stone objects separates the West Indian cave man from that of a following epoch, the agricultural West Indian, whose stonework reached a perfection not excelled elsewhere in the two Americas. The characteristic of the agricultural epoch, which was highest in development at the time the islands were discovered, is best known from the stone collars, stone idols, ornaments, and various other artifacts which have been described in the preceding pages. While pottery was more highly developed in the Lesser Antilles than in the Greater, the celts and objects made of stone of the Lesser Antilles were as a rule inferior to those of Porto Rico. This superiority in pottery found in Trinidad and neighboring islands is undoubtedly due to the vicinity of South America, the coarse pottery of Porto Rico not being highly influenced in that way. The archeological evidences of the third epoch, or that of the mixed race formed by an amalgamation of agricultural and Carib elements, appear to indicate a decline in the arts, as would naturally be expected from the nature of the life of the inhabitants. All three states of culture—caveman, Tainan, and Carib—coexisted in the West Indies when discovered. The first mentioned had been driven to isolated, undesirable localities; the Tainan held the Greater Antilles, but had been submerged on the Lesser except in Trinidad; the Carib occupied the islands between Trinidad and Porto Rico and was slowly encroaching on the Greater Antilles when Columbus gave a new world to Castile and Leon.

[28] The difference between pottery found in the Cueva de los Golondrinos and that from caves in the interior of the island of Porto Rico is easily recognized.

AUTHORITIES CITED

ABBAD Y LASIERRA, FRAY IÑIGO. Historia geografica, civil y natural de la isla de San Juan Bautista de Puerto-Rico. Nueva Edicion. Puerto-Rico, 1866.

AITKEN, ROBERT. Porto Rican burial caves. Proc. Nineteenth Int. Cong. Amer., Washington, 1915, pp. 224–228. Washington, 1917.

ANDREE, RICHARD. Seltene Ethnographica des städtischen Gewerbe-Museums zu Ulm. Baessler-Archiv, Band IV, pp. 29–38, Leipzig, 1914.

BACHILLER Y MORALES, ANTONIO. Cuba Primitiva. Habana, 1883.

BAIRD, [ROBERT]. Impressions and experiences of the West Indies and North America in 1849. Phila., 1850.

BENZONI, GIROLAMO. History of the New World. Tr. and ed. by W. H. Smyth. Hakluyt Soc. Pubs. [No. 21]. London, 1857.

BRANCH, C. W. Aboriginal antiquities of Saint Kitts and Nevis. Amer. Anthrop., n. s., vol. IX, no. 2, pp. 315–333, 1907.

BRETT, W. H. The Indian Tribes of Guiana. London, 1868.

BRINTON, DANIEL G. Archæology of Cuba. American Archæologist, vol. II, pt. 10, pp. 253–256. Columbus, Ohio, 1898.

CHARLEVOIX, PIERRE F. X. DE. Histoire de l'Isle Espagnole ou de S. Domingue. Amsterdam, 1733.

COLL Y TOSTE, CAYETANO. Prehistoria de Puerto-Rico. San Juan, 1907.

COLLENS, J. H. A guide to Trinidad. A handbook for the use of tourists and visitors. 2nd ed. London, 1888.

CRONAU, RUDOLF. Amerika. Die Geschichte seiner Entdeckung von der ältesten bis auf die neueste Zeit. Vols. I–II. Leipzig, 1892.

CULIN, STEWART. The Indians of Cuba. Bull. Free Mus. Sci. and Art. Univ. Pa., vol. III, no. 4, pp. 185–225. Phila., 1902.

D'ANGHERA, PETER MARTYR. De Orbe Novo. Tr. from the latin with notes and Introduction by Francis Augustus McNutt. Vols. I–II. New York and London, 1912.

DAVIES, JOHN. The history of the Caribby-Islands. London, 1666.

DE BOOY, THEODOOR. Lucayan artifacts from the Bahamas. Amer. Anthrop., n. s., vol. XV, no. 1, pp. 1–7, 1913.

——— Certain kitchen-middens in Jamaica. Amer. Anthrop., n. s., vol. XV, pp. 425–434, 1913.

——— Certain archæological investigations in Trinidad, British West Indies. Amer. Anthrop., n. s., vol. XIX, no. 4, pp. 471–486, 1917.

——— Archaeology of the Virgin Islands. Mus. Amer. Ind., Indian Notes and Monographs, vol. I, no. 1, New York, 1919.

DE HOSTOS, ADOLFO. Prehistoric Porto Rican ceramics. Amer. Anthrop., n. s., vol. XXI, pp. 376–399, 1919.

DE LA BORDE, PÈRE. History of the origin, customs, religion, wars, and travels of the Caribs. Timehri: Journ. Roy. Agri. and Com. Soc. British Guiana, vol. V, pt. 2, Demerara, 1886.

DUERDEN, J. E. Aboriginal Indian remains in Jamaica. Journ. Inst. Jamaica, vol. II, no. 4, Kingston, 1897.

DU TERTRE, JEAN BAPTISTE. Histoire générale des Isles des Christophe, de la Guadeloupe, de la Martinique, et autres dans l'Amérique. Paris, 1654.

EDWARDS, BRYAN. The history, civil and commercial, of the British colonies in the West Indies. 4th ed. Vols. I–III and atlas. London, 1807.

FERRER. See RODRIGUEZ-FERRER.

FEWKES, J. WALTER. Prehistoric culture of Cuba. Amer. Anthrop., n. s., vol. VI, no. 5, pp. 585–598, 1904.

——— Aborigines of Porto Rico and neighboring islands. Twenty-fifth Ann. Rept. Bur. Amer. Ethn., pp. 3–220, Washington, 1907.

——— Further notes on the archeology of Porto Rico. Amer. Anthrop., n. s., vol. X, pp. 624–633, 1908.

——— Porto Rican elbow stones in the Heye Museum, with discussion of similar objects elsewhere. Amer. Anthrop., n. s., vol XV, pp. 435–459, 1913. Reprinted as Cont. Heye Mus., no. 4.

——— Prehistoric objects from a shell heap at Erin Bay, Trinidad. Amer. Anthrop., n. s., vol. XVI, no. 2, pp. 200–220, 1914.

——— Prehistoric stone collar from Porto Rico. Amer. Anthrop., n. s., vol. XVI, pp. 319–330, 1914.

——— Relations of aboriginal culture and environment in the Lesser Antilles. Bull. Amer. Geog. Soc., vol. XLVI, no. 9, pp. 662–678, 1914. Reprinted as Cont. Heye Mus., vol. I, no. 8.

——— Prehistoric cultural centers in the West Indies. Journ. Wash. Acad. Sci., vol. V, no. 12, pp. 436–443, 1915.

——— Engraved celts from the Antilles. Cont. Heye Mus., vol. II, no. 3, New York, 1915.

FORTE, JOSEPH. Note on Carib chisels. Journ. Anthrop. Inst. Great Britain, vol. XI, pp. 2–3, London, 1882.

GIGLIOLI, ENRICO H. Intorno a due rari cimeli precolombiani dalle Antille, molto probabilmente da San Domingo, conservati nel Museo Etnografico di Firenze. Proc. Int. Cong. Amer., Sixteenth sess., Wien, 1908, pt. 2, pp. 313–320, Wien, 1910.

GOMEZ Y PLANOS, ENRIQUE. Prehistoria de la Isla de Cuba. Anales de la Academia de Ciencias, vol. XXXVII, pp. 71–110, Habana, Aug.–Dec., 1900.

GUMILLA, JOSEPH. El Orinoco ilustrado y defendido. Vols I–II. Madrid, 1745.

HAEBERLIN, HERMAN K. Some archæological work in Porto Rico. Amer. Anthrop., n. s., vol. XIX, no. 2, pp. 214–238, 1917.

HUCKERBY, THOMAS. Petroglyphs of St. Vincent, British West Indies. Amer. Anthrop., n. s., vol. XVI, no. 2, pp. 238–244, 1914.

HUGHES, GRIFFITH. The natural history of Barbados. London, 1750.

IM THURN, EVERARD F. Among the Indians of Guiana. London, 1883.

JEFFERYS, T. The natural and civil history of the French Dominions in North and South America. London, 1760.

JOYCE, THOMAS A. Prehistoric antiquities from the Antilles, in the British Museum. Journ. Roy. Anthrop. Inst., vol. XXXVII, pp. 402–419, 1907.

——— Central American and West Indian archæology. London, 1916.

[LABAT, JEAN BAPTISTE.] Nouveau voyage aux isles de l'Amerique. Vols. I–VI, Paris, 1722.

LAET, JUAN DE. L'histoire du Nouveau Monde on description des Indes Occidentales. Leyde, 1640.

LA TORRE Y HUERTA, CARLOS DE. Manual ó Guia para los Exámenes de los Maestros y Maestras. Habana, 1901.

LIGON, RICHARD. A true and exact history of the island of Barbados. London, 1657.

MARTYR, PETER. See D'ANGHERA, PETER MARTYR.

MASON, J. ALDEN. Excavation of a new archeological site in Porto Rico. Proc. Nineteenth Int. Cong. Amer., Washington, 1915, pp. 220–223, Washington, 1917.

MASON, OTIS T. The Guesde collection of antiquities in Pointe-a-Pitre, Guadeloupe, West Indies. Smithson. Rept. for 1884, pp. 731–837, Washington, 1885.

——— The Latimer collection of antiquities from Porto Rico in the National Museum, at Washington, D. C. Smithson. Rept. for 1876, pp. 372–393, Washington, 1877.

MONTANÉ, LUIS. L'Homme de Sancti Spiritus. Compte Rendu XIII Congrès Int. d'Anth. et d'Arch. Prehist., Monaco, 1906.

MUÑOZ, JUAN BAUTISTA. Historia del Nuevo Mundo. Madrid, 1793.

OVIEDO Y VA'LDEZ, GONZALO FERNANDEZ DE. Historia general y natural de las Indias. Madrid, 1851.

PEPPER, GEORGE H. The Museum of the American Indian, Heye Foundation. Geog. Review, vol. II, no. 6, pp. 401–418, New York, 1916.

POEY, ANDRES. Cuban antiquities. A brief description of some relics found in the island of Cuba. Trans. Amer. Ethn. Soc., vol. III, pt. 1, pp. 183–202, New York, 1853. Reprinted in facsimile, 1909.

POINCY, LOUIS DE. See ROCHEFORT, CHARLES C. DE.

QUIN, JOHN T. The building of an island, being a sketch of the geological structure of the Danish West Indian island of St. Croix, or Santa Cruz. New York, 1907.

ROCHEFORT, CHARLES C. DE. Histoire naturelle et morale des îles Antilles de l'Amerique. Roterdam, 1665. [Also attributed to Louis de Poincy.]

RODRIGUEZ-FERRER, MIGUEL. De los terrícolas cubanos con anterioridad á los que allí encontró Colón, según puede inferirse de las antigüedades encontradas en esta Isla. Proc. Int. Cong. Amer., 4th sess., Madrid, 1881, vol. I, pp. 224–261, Madrid, 1882.

ROTH, H. LING. Aborigines of Hispaniola. Journ. Anth. Inst. Gt. Brit., vol. XVI, pp. 247–286, London, 1887.

SHEPPARD, CHARLES. An historical account of the island of St. Vincent. London, 1831.

STAHL, AUGUSTIN. Los Indios Borinquenos. Puerto Rico, 1889.

STEVENS, EDWARD T. Flint chips. A guide to prehistoric archæology. London. 1870.

WALTON, WILLIAM. Present state of the Spanish colonies; including a particular report of Hispañola. London, 1810.

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